TSD File Inventory Index

Date: July 7, 2008

Initial: CMGuenas

Facility Name: GAAC (Daugherty Energy & Engineering - One Folder Site)

Facility Identification Number: IND 980 503 968

A.1 General Correspondence		B.2 Permit Docket (B.1.2)	X
A.2 Part A / Interim Status	X	.1 Correspondence	X
.1 Correspondence	X	.2 All Other Permitting Documents (Not Part of the ARA)	
.2 Notification and Acknowledgment	X	C.1 Compliance - (Inspection Reports)	X
.3 Part A Application and Amendments	X	C.2 Compliance/Enforcement	X
.4 Financial Insurance (Sudden, Non Sudden)		.1 Land Disposal Restriction Notifications	
.5 Change Under Interim Status Requests		.2 Import/Export Notifications	
.6 Annual and Biennial Reports		C.3 FOIA Exemptions - Non-Releasable Documents	
A.3 Groundwater Monitoring	X	D.1 Corrective Action/Facility Assessment	
.1 Correspondence	X	.1 RFA Correspondence	
.2 Reports	X	.2 Background Reports, Supporting Docs and Studies	
A.4 Closure/Post Closure		.3 State Prelim. Investigation Memos	
.1 Correspondence		.4 RFA Reports	
.2 Closure/Post Closure Plans, Certificates, etc		D. 2 Corrective Action/Facility Investigation	
A.5 Ambient Air Monitoring		.1 RFI Correspondence	
.1 Correspondence		.2 RFI Workplan	
.2 Reports		.3 RFI Program Reports and Oversight	
B.1 Administrative Record		.4 RFI Draft /Final Report	
		5. RFI QAPP	

Total - 1

.6 RFI QAPP Correspondence		.8 Progress Reports	
.7 Lab Data, Soil-Sampling/Groundwater		D.5 Corrective Action/Enforcement	
.8 RFI Progress Reports		.1 Administrative Record 3008(h) Order	
.9 Interim Measures Correspondence		.2 Other Non-AR Documents	
.10 Interim Measures Workplan and Reports		D.6 Environmental Indicator Determinations	
D.3 Corrective Action/Remediation Study		.1 Forms/Checklists	
.1 CMS Correspondence		E. Boilers and Industrial Furnaces (BIF)	
.2 Interim Measures		.1 Correspondence	
.3 CMS Workplan		.2 Reports	
.4 CMS Draft/Final Report		F Imagery/Special Studies (Videos, photos, disks, maps, blueprints, drawings, and other special materials.)	
.5 Stabilization		G.1 Risk Assessment	
.6 CMS Progress Reports		.1 Human/Ecological Assessment	
.7 Lab Data, Soil-Sampling/Groundwater		.2 Compliance and Enforcement	
D.4 Corrective Action Remediation Implementation		.3 Enforcement Confidential	
.1 CMI Correspondence		.4 Ecological - Administrative Record	
.2 CMI Workplan		.5 Permitting	
.3 CMI Program Reports and Oversight		.6 Corrective Action Remediation Study	
.4 CMI Draft/Final Reports		.7 Corrective Action/Remediation Implementation	
.5 CMI QAPP		.8 Endangered Species Act	
.6 CMI QAPP Correspondence		.9 Environmental Justice	
1			

Note: Transmittal Letter to Be Included with Reports.
Comments: One folder set

A.2 Part A/
Interim Status

UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
REGION V
230 SOUTH DEARBORN ST.
CHICAGO, ILLINOIS 60604

APR 7 1983

REPLY TO ATTENTION OF: RCRA ACTIVITIES

Daniel Stewart, Environmental Eng.
GMC Delco-Remy Division
2401 Columbus Avenue
Anderson, Indiana 46011

RE: Interim Status Acknowledgement USEPA ID No. IND980503940
FACILITY NAME: GMC Delco-Remy Division

Dear Mr. Stewart:

This is to acknowledge that the U.S. Environmental Protection Agency (USEPA) has completed processing your Part A Hazardous Waste Permit Application. It is the opinion of this office that the information submitted is complete and that you, as an owner or operator of a hazardous waste management facility, have met the requirements of Section 3005(e) of the Resource Conservation and Recovery Act (RCRA) for Interim Status. However, should USEPA obtain information which indicates that your application was incomplete or inaccurate, you may be requested to provide further documentation of your claim for Interim Status. Our opinion will be reevaluated on the basis of this information.

As an owner or operator of a hazardous waste management facility, you are required to comply with the interim status standards as prescribed in 40 CFR Parts 122 and 265, or with State rules and regulations in those States which have been authorized under Section 3006 of RCRA. In addition, you are reminded that operating under interim status does not relieve you from the need to comply with all applicable State and local requirements.

The printout enclosed with this letter identifies the limit(s) of the process design capacities your facility may use during the interim status period. This information was obtained from your Part A Permit application. If you wish to handle new wastes, to change processes, to increase the design capacity of existing processes, or to change ownership or operational control of the facility, you may do so only as provided in 40 CFR Sections 122.22 and 122.23.

As stated in the first paragraph of this letter, you have met the requirements of 40 CFR Part 122.23; your facility may operate under interim status until such time as a permit is issued or denied. This will be preceded by a request from this office or the State (if authorized) for Part B of your application. Please contact Arthur Kawatachi of my staff at (312) 886-7449, if you have any questions concerning this letter or the enclosure.

Sincerely,

Karl J. Klepitsch, Jr., Chief
Waste Management Branch

Enclosure

cc: E. E. Reese, Gen. Mgr., GMC Delco-Remy Div.

UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
REGION V
111 West Jackson Blvd.
CHICAGO, ILLINOIS 60604

file

REPLY TO ATTENTION OF: RCRA ACTIVITIES

DEC 9 1982

STEWART D L ENVIRO ENGRG
GMC DELCO-REMY DIV
2401 COLUMBUS AVENUE
ANDERSON IN 46011
FACILITY: COLUMBUS AVENUE AREA
LOCATION: ANDERSON IN 46011
ID NO.: INT190011015

Dear Applicant:

RE: U.S. EPA Identification Number Change

This is to inform you that the United States Environmental Protection Agency (U.S. EPA) will be changing your temporary (T) identification number to a permanent (D) one. The label below shows your current temporary number as "OLD T NO." and the new permanent number as "NEW D NO."

OLD I.D. NO.: INT190011015

NEW I.D. NO.: IND980503940

In order to provide your facility with adequate time to convert to the permanent U.S. EPA identification number, we will make the change in our computer system effective January 1, 1983. This will allow you to use your temporary identification number until the end of the calendar year and, thus, cover all 1982 hazardous waste handled under one number for your annual report.

We have coordinated the identification number change with your State hazardous waste management office. The State has a listing of your old and new numbers.

Please contact Mr. Arthur Kawatachi of my staff at (312) 886-7449, if you have any questions regarding this matter.

Sincerely yours,

Karl J. Klepitsch, Jr., Chief
Waste Management Branch

cc: Facility owner

no file

EPA

ACKNOWLEDGEMENT OF NOTIFICATION OF HAZARDOUS WASTE ACTIVITY
(VERIFICATION)

This is to acknowledge that you have filed a Notification of Hazardous Waste Activity for the installation located at the address shown in the box below to comply with Section 3010 of the Resource Conservation and Recovery Act *(RCRA)*. Your EPA Identification Number for that installation appears in the box below. The EPA Identification Number must be included on all shipping manifests for transporting hazardous wastes; on all Annual Reports that generators of hazardous waste, and owners and operators of hazardous waste treatment, storage and disposal facilities must file with EPA; on all applications for a Federal Hazardous Waste Permit; and other hazardous waste management reports and documents required under Subtitle C of RCRA.

EPA I.D. NUMBER ➤ * INT190011015 REACKNOWLEDGEMENT

GMC DELCO-REMY DIV
2401 COLUMBUS AVENUE
ANDERSON IN 46011

INSTALLATION ADDRESS ➤ COLUMBUS AVENUE AREA
ANDERSON IN 46011

EPA Form 8700-12B (4-80)

09/28/81

Please print or type with ELITE type *(12 characters/inch)* in the unshaded areas only. GSA No. 0246-EPA-OT

EPA U.S. ENVIRONMENTAL PROTECTION AGENCY
NOTIFICATION OF HAZARDOUS WASTE ACTIVITY

INSTRUCTIONS: If you received a preprinted label, affix it in the space at left. If any of the information on the label is incorrect, draw a line through it and supply the correct information in the appropriate section below. If the label is complete and correct, leave Items I, II, and III below blank. If you did not receive a preprinted label, complete all items. "Installation" means a single site where hazardous waste is generated, treated, stored and/or disposed of, or a transporter's principal place of business. Please refer to the INSTRUCTIONS FOR FILING NOTIFICATION before completing this form. The information requested herein is required by law *(Section 3010 of the Resource Conservation and Recovery Act)*.

INSTALLATION'S EPA I.D. NO.

I. NAME OF INSTALLATION

II. INSTALLATION MAILING ADDRESS

III. LOCATION OF INSTALLATION

PLEASE PLACE LABEL IN THIS SPACE

IND 980 503 940

FOR OFFICIAL USE ONLY

COMMENTS: C IND980503940

INSTALLATION'S EPA I.D. NUMBER: F INTI900110152 1 (T/A, C)

APPROVED

DATE RECEIVED (yr., mo., & day)

GMC DELCO-REMY DIV

I. NAME OF INSTALLATION

DELCO-REMY DIV. GENERAL MOTORS CORP.

II. INSTALLATION MAILING ADDRESS

STREET OR P.O. BOX: 3 2401 Columbus Avenue

CITY OR TOWN: 4 Anderson — ST.: IN — ZIP CODE: 46011

III. LOCATION OF INSTALLATION

STREET OR ROUTE NUMBER: 5 Columbus Avenue Area

CITY OR TOWN: 6 Anderson — ST.: IN — ZIP CODE: 46011

IV. INSTALLATION CONTACT

NAME AND TITLE *(last, first, & job title)*: 2 STEWART D L ENVIRO. ENGRG.

PHONE NO. *(area code & no.)*: 317-646-2824

V. OWNERSHIP

A. NAME OF INSTALLATION'S LEGAL OWNER: 8 GENERAL MOTORS CORPORATION

B. TYPE OF OWNERSHIP *(enter the appropriate letter into box)*: M

F = FEDERAL
M = NON-FEDERAL

VI. TYPE OF HAZARDOUS WASTE ACTIVITY *(enter "X" in the appropriate box(es))*

- [X] A. GENERATION
- [ ] B. TRANSPORTATION *(complete item VII)*
- [X] C. TREAT/STORE/DISPOSE
- [ ] D. UNDERGROUND INJECTION

VII. MODE OF TRANSPORTATION *(transporters only – enter "X" in the appropriate box(es))*

- [ ] A. AIR
- [ ] B. RAIL
- [ ] C. HIGHWAY
- [ ] D. WATER
- [ ] E. OTHER *(specify)*:

VIII. FIRST OR SUBSEQUENT NOTIFICATION

Mark "X" in the appropriate box to indicate whether this is your installation's first notification of hazardous waste activity or a subsequent notification. If this is not your first notification, enter your installation's EPA I.D. Number in the space provided below.

IND980503940

- [X] A. FIRST NOTIFICATION
- [ ] B. SUBSEQUENT NOTIFICATION *(complete item C)*

C. INSTALLATION'S EPA I.D. NO.: INTI900110152

IX. DESCRIPTION OF HAZARDOUS WASTES

Please go to the reverse of this form and provide the requested information.

NOV 19 1980

CONTINUE ON REVERSE

I.D. – FOR OFFICIAL USE ONLY

W | WVT190011010152 | 2 | 1

IX. DESCRIPTION OF HAZARDOUS WASTES *(continued from front)*

A. HAZARDOUS WASTES FROM NON–SPECIFIC SOURCES. Enter the four–digit number from 40 CFR Part 261.31 for each listed hazardous waste from non–specific sources your installation handles. Use additional sheets if necessary.

1	2	3	4	5	6
F001	F002	F005	F017		
7	**8**	**9**	**10**	**11**	**12**

B. HAZARDOUS WASTES FROM SPECIFIC SOURCES. Enter the four–digit number from 40 CFR Part 261.32 for each listed hazardous waste from specific industrial sources your installation handles. Use additional sheets if necessary.

13	14	15	16	17	18
19	**20**	**21**	**22**	**23**	**24**
25	**26**	**27**	**28**	**29**	**30**

C. COMMERCIAL CHEMICAL PRODUCT HAZARDOUS WASTES. Enter the four–digit number from 40 CFR Part 261.33 for each chemical substance your installation handles which may be a hazardous waste. Use additional sheets if necessary.

31	32	33	34	35	36
U002	U045	U075	U154	U159	U188
37	**38**	**39**	**40**	**41**	**42**
U201	U210	U220	U225	U228	U239
43	**44**	**45**	**46**	**47**	**48**

D. LISTED INFECTIOUS WASTES. Enter the four–digit number from 40 CFR Part 261.34 for each listed hazardous waste from hospitals, veterinary hospitals, medical and research laboratories your installation handles. Use additional sheets if necessary.

49	50	51	52	53	54

E. CHARACTERISTICS OF NON–LISTED HAZARDOUS WASTES. Mark "X" in the boxes corresponding to the characteristics of non–listed hazardous wastes your installation handles. *(See 40 CFR Parts 261.21 – 261.24.)*

[X] 1. IGNITABLE (D001) [X] 2. CORROSIVE (D002) [X] 3. REACTIVE (D003) [X] 4. TOXIC (D000)

DETACH

X. CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

SIGNATURE	NAME & OFFICIAL TITLE (type or print)	DATE SIGNED
M D Erehart	Divisional Plant Eng	8/14/80

DETACH

EPA Form 8700-12 (6-80) REVERSE

Delco Remy

Division of General Motors Corporation 2401 Columbus Avenue P.O. Box 2439 Anderson, Indiana 46011

November 17, 1980

EPA Region V
RCRA Activities
P.O. Box 7861
Chicago, IL 60680

Dear Sirs:

Included with this mailing is our hazardous waste permit application. As you will note, we have not included our EPA I.D. number as we had not received it when the application was submitted.

At the time of our telephone conversation, Richard Shandross of your office indicated that your records showed that a notification form had not been received from us. Attached are copies of the notification forms we submitted as well as a returned mailing receipt which shows these forms were received by your office on August 15, 1980.

I should explain that the Delco-Remy facilities in Anderson have two non-continuous facilities and, thus, by regulation are required to submit two separate applications. Both facilities have the same mailing address, and are owned and operated by the same management. In the May, 1980 notification packet distributed by the EPA Administrator, we received one packet and were assigned one number (IND075960286 - see attached label). However, having two facilities with the same address, I am not sure which facility the notification packet and I.D. number should cover.

We would be quite agreeable to use one single identification number for both facilities as all correspondence and recordkeeping for both facilities will be handled by a central office.

Should you have any questions, please contact this office at 317-646-2824.

Sincerely,

Daniel L. Stewart

Daniel L. Stewart
Delco-Remy Division, G.M.C.
Plant Engineering Dept.

DLS:esw
Enc.

NOV 19 1980

Please print or type with ELITE type (12 chara /inch) in the unshaded areas only.

Form Approved OMB No. 158-S79016
GSA No. 0246-EPA-OT

EPA — U.S. ENVIRONMENTAL PROTECTION AGENCY
NOTIFICATION OF HAZARDOUS WASTE ACTIVITY

INSTRUCTIONS: If you received a preprinted label, affix it in the space at left. If any of the information on the label is incorrect, draw a line through it and supply the correct information in the appropriate section below. If the label is complete and correct, leave Items I, II, and III below blank. If you did not receive a preprinted label, complete all items. "Installation" means a single site where hazardous waste is generated, treated, stored and/or disposed of, or a transporter's principal place of business. Please refer to the INSTRUCTIONS FOR FILING NOTIFICATION before completing this form. The information requested herein is required by law *(Section 3010 of the Resource Conservation and Recovery Act).*

INSTALLATION'S EPA I.D. NO.: ~~IND075960286~~

NAME OF INSTALLATION: 2

II. INSTALLATION MAILING ADDRESS

III. LOCATION OF INSTALLATION

PLEASE PLACE LABEL IN THIS SPACE

000484 AUG 18 80

IND 07 596 0286

DETACH

FOR OFFICIAL USE ONLY

COMMENTS: C

INSTALLATION'S EPA I.D. NUMBER	APPROVED	DATE RECEIVED (yr., mo., & day)
S F ~~INT190011015~~ T/A C 2 1	A	800815

I. NAME OF INSTALLATION

DELCO-REMY DIV. GENERAL MOTORS CORP.

II. INSTALLATION MAILING ADDRESS

STREET OR P.O. BOX: 3 2401 Columbus Avenue

CITY OR TOWN	ST.	ZIP CODE
4 Anderson	IN	46011

III. LOCATION OF INSTALLATION

STREET OR ROUTE NUMBER: 5 Columbus Avenue Area

OK

CITY OR TOWN	ST.	ZIP CODE
6 Anderson	IN	46011

IV. INSTALLATION CONTACT

NAME AND TITLE (last, first, & job title)	PHONE NO. (area code & no.)
2 STEWART D L ENVIRO. ENGRG.	317-646-2824

V. OWNERSHIP

A. NAME OF INSTALLATION'S LEGAL OWNER: 8 GENERAL MOTORS CORPORATION

DETACH

B. TYPE OF OWNERSHIP (enter the appropriate letter into box): M

F = FEDERAL
M = NON–FEDERAL

VI. TYPE OF HAZARDOUS WASTE ACTIVITY (enter "X" in the appropriate box(es))

- [X] A. GENERATION
- [ ] B. TRANSPORTATION (complete item VII)
- [X] C. TREAT/STORE/DISPOSE
- [ ] D. UNDERGROUND INJECTION

VII. MODE OF TRANSPORTATION (transporters only – enter "X" in the appropriate box(es))

- [ ] A. AIR
- [ ] B. RAIL
- [ ] C. HIGHWAY
- [ ] D. WATER
- [ ] E. OTHER (specify):

VIII. FIRST OR SUBSEQUENT NOTIFICATION

Mark "X" in the appropriate box to indicate whether this is your installation's first notification of hazardous waste activity or a subsequent notification. If this is not your first notification, enter your Installation's EPA I.D. Number in the space provided below.

~~IND075960286~~

IND980503940

C. INSTALLATION'S EPA I.D. NO.

~~INT190011015~~

- [X] A. FIRST NOTIFICATION
- [ ] B. SUBSEQUENT NOTIFICATION (complete item C)

IX. DESCRIPTION OF HAZARDOUS WASTES

Please go to the reverse of this form and provide the requested information.

EPA Form 8700-12 (6-80)

AUG 15 1980

CONTINUE ON REVERSE

IND 075960286

I.D. – FOR OFFICIAL USE ONLY

W INT190011015 T/A C

IX. DESCRIPTION OF HAZARDOUS WASTES *(continued from front)*

A. HAZARDOUS WASTES FROM NON–SPECIFIC SOURCES. Enter the four–digit number from 40 CFR Part 261.31 for each listed hazardous waste from non–specific sources your installation handles. Use additional sheets if necessary.

1	2	3	4	5	6
F001	F002	F005	F017		
7	**8**	**9**	**10**	**11**	**12**

B. HAZARDOUS WASTES FROM SPECIFIC SOURCES. Enter the four–digit number from 40 CFR Part 261.32 for each listed hazardous waste from specific industrial sources your installation handles. Use additional sheets if necessary.

13	14	15	16	17	18
19	**20**	**21**	**22**	**23**	**24**
25	**26**	**27**	**28**	**29**	**30**

C. COMMERCIAL CHEMICAL PRODUCT HAZARDOUS WASTES. Enter the four–digit number from 40 CFR Part 261.33 for each chemical substance your installation handles which may be a hazardous waste. Use additional sheets if necessary.

31	32	33	34	35	36
U002	U045	U075	U154	U159	U188
37	**38**	**39**	**40**	**41**	**42**
U201	U210	U220	U225	U228	U239
43	**44**	**45**	**46**	**47**	**48**

D. LISTED INFECTIOUS WASTES. Enter the four–digit number from 40 CFR Part 261.34 for each listed hazardous waste from hospitals, veterinary hospitals, medical and research laboratories your installation handles. Use additional sheets if necessary.

49	50	51	52	53	54

E. CHARACTERISTICS OF NON–LISTED HAZARDOUS WASTES. Mark "X" in the boxes corresponding to the characteristics of non–listed hazardous wastes your installation handles. *(See 40 CFR Parts 261.21 – 261.24.)*

[X] 1. IGNITABLE (D001) [X] 2. CORROSIVE (D002) [X] 3. REACTIVE (D003) [X] 4. TOXIC (D000)

X. CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

SIGNATURE	NAME & OFFICIAL TITLE *(type or print)*	DATE SIGNED
M D Erhart	Divisional Plant Eng	8/14/80

EPA Form 8700-12 (6-80) REVERSE

AUG 15 1980

STATE of INDIANA

DEPARTMENT OF
ENVIRONMENTAL MANAGEMENT

INDIANAPOLIS. 46225

105 South Meridian Street

December 2, 1986

Ms. Carol Barry
GMC Delco Remy Division
2401 Columbus Avenue
Anderson, IN 46018

Re: Withdrawal of Part A Application for
GMC Delco Remy Division
Anderson, Indiana
IND 980503940

Dear Ms. Barry:

This is to acknowledge that we have received your August 28, 1986 withdrawal request, and, after a file review, determined that your facility is not required to have a Final State Hazardous Waste Permit under 320 IAC 4.1-33-1. Therefore, the State hereby withdraws your status as a RCRA treatment, storage, and disposal (TSD) facility. Please be advised that you must insure that your waste is handled in accordance with 320 IAC 4.1-9-5 and all applicable State and local requirements.

You will retain your U.S. Environmental Protection Agency identification number if you have notified as a generator or transporter of hazardous waste.

Please contact Ms. Janet Snedeker of the Plan Review and Permit Section at AC 317/232-3264 for assistance if you have any questions. Refer to "Withdrawal of Part A" in all correspondence on this matter.

Very truly yours,

David D. Lamm
Assistant Commissioner for
Solid and Hazardous Waste Management

JES/tjd
cc: Mr. Hak Cho, U.S. EPA, Region V
Ms. Pat Vogtman, U.S. EPA, Region V
Mr. Jeffrey Stevens
Ms. Shirley Hancock

Gus, p/s. put on non-regulated shelf. Sent Maintenance Sheet for Data Entry Changes 2/19/87 M.V.
Entered on pc

STATE of INDIANA

DEPARTMENT OF
ENVIRONMENTAL MANAGEMENT

INDIANAPOLIS, 46225

105 South Meridian Street

September 16, 1986

Mr. Hak Cho, Chief
Indiana Technical Unit
U.S. Environmental Protection Agency
Region V
230 South Dearborn Street
Chicago, IL 60604

Re: Withdrawal of Part A Application
GMC, Delco Remy Division
Anderson, Indiana
IND 980503940

Dear Mr. Cho:

Enclosed, please find a copy of a request by the above-referenced facility to withdraw their Part A application. Upon withdrawal of the Part A, Delco Remy will be considered a generator only.

A file search and a review have been conducted by staff and we propose to approve withdrawal as requested. If no comments from your office are received within two weeks of the date of this letter, we will assume you are in agreement with our decision and will proceed with the approval to the facility for withdrawal.

If you have any questions regarding this correspondence, please contact Ms. Janet Snedeker at AC 317/232-3264.

Very truly yours,

Terry F. Gray

Terry F. Gray, Chief
Plan Review and Permit Section
Hazardous Waste Management Branch
Solid and Hazardous Waste Management

JES/drc
Enclosure
cc: Ms. Pat Vogtman, U.S. EPA, Region V

Certified 3346 ICI Madison

Delco Remy

Division of General Motors Corporation 2401 Columbus Avenue P.O. Box 2439 Anderson, Indiana 46018-9986

SEP 2 2 04 PM '86

DIVISION OF LAND
POLLUTION CONTROL
STATE
BOARD OF HEALTH

August 28, 1986

Mr. Terry Gray, Chief
Plan Review and Permit Section
Hazardous Waste Management Branch
Division of Land Pollution Control
105 South Meridian Street
Indianapolis, IN 46225

RE: DELCO REMY DIVISION GMC IND 980503940

On August 7, 1986, Mr. Blankenberger had completed a RCRA inspection. He had mentioned that there was still some confusion about Delco Remy's temporary EPA identification number. The temporary EPA indentification number was INT190011015 and the permanent EPA identification number is IND980503940.

It should be noted that Delco Remy had requested a withdrawl of our Part A Permit March 12, 1984. A copy of this letter is attached.

If you should have any questions, please feel free to contact me at (317) 646-2957.

Sincerely,

Carol F. Barry

Carol F. Barry
Environmental Engineer

cc: Mr. Jeff Blankenberger

CFB:dmf

Delco Remy

Division of General Motors Corporation 2401 Columbus Avenue P.O. Box 2439 Anderson, Indiana 46018-9986

March 12, 1984

Mr. Karl J. Klepitsch, Jr., Chief
Waste Management Branch
RCRA Activities
U.S. Environmental Protection Agency - Region V
P.O. Box 7801
Chicago, IL 60680

RE: Withdrawal of RCRA Part "A" Permit Application
IND 980503940
GMC - Delco Remy Division - Columbus Avenue Plants
2401 Columbus Avenue
Anderson, Indiana 46018

Dear Mr. Klepitsch:

A RCRA Part "A" application was submitted for the subject facility on November 14, 1980. The application was for hazardous waste F017 which was subsequently removed from the hazardous waste listing.

The application was submitted as a protective filing to avoid a possible technical violation of the regulations if the hazardous wastes were accumulated on-site beyond the 90-day limit. Since then, actual operating experience indicates hazardous wastes are transported off-site within 90 days. The storage areas designated on the Part "A" application were never used.

We are, therefore, submitting this request for withdrawal of the previously filed Part "A" application. We believe this request to be consistent with the final rule for 40CFR Part 262.

If you have any questions, please contact Lisa Bryant in the Plant Engineering Department on (317) 646-3280.

Sincerely yours,

James F. Ault
General Manager

dch

Delco Remy

Division of General Motors Corporation 2401 Columbus Avenue P.O. Box 2439 Anderson, Indiana 46018-9986

March 12, 1984

Mr. Karl J. Klepitsch, Jr., Chief
Waste Management Branch
RCRA Activities
U.S. Environmental Protection Agency - Region V
P.O. Box 7801
Chicago, IL 60680

RE: Withdrawal of RCRA Part "A" Permit Application
IND 980503940 G, TSD, PA
GMC - Delco Remy Division - Columbus Avenue Plants
2401 Columbus Avenue
Anderson, Indiana 46018

Dear Mr. Klepitsch:

A RCRA Part "A" application was submitted for the subject facility on November 14, 1980. The application was for hazardous waste F017 which was subsequently removed from the hazardous waste listing.

The application was submitted as a protective filing to avoid a possible technical violation of the regulations if the hazardous wastes were accumulated on-site beyond the 90-day limit. Since then, actual operating experience indicates hazardous wastes are transported off-site within 90 days. The storage areas designated on the Part "A" application were never used.

We are, therefore, submitting this request for withdrawal of the previously filed Part "A" application. We believe this request to be consistent with the final rule for 40CFR Part 262.

If you have any questions, please contact Lisa Bryant in the Plant Engineering Department on (317) 646-3280.

Sincerely yours,

James F. Ault
General Manager

dch

RECEIVED 3/20/84 EPA RAIV

Please print or type in the unshaded areas only
(fill—in areas are spaced for elite type, i.e., 12 characters per inch).

Form Approved OMB No. 158-R0175

428

FORM 1 GENERAL

EPA

U.S. ENVIRONMENTAL PROTECTION AGENCY

GENERAL INFORMATION

Consolidated Permits Program

(Read the "General Instructions" before starting.)

EPA I.D. NUMBER

S F | IND075960286 | T/A | C D

LABEL ITEMS

I. EPA I.D. NUMBER

III. FACILITY NAME

V. FACILITY MAILING ADDRESS

VI. FACILITY LOCATION

PLEASE PLACE LABEL IN THIS SPACE

INT Product

GENERAL INSTRUCTIONS

If a preprinted label has been provided, affix it in the designated space. Review the information carefully; if any of it is incorrect, cross through it and enter the correct data in the appropriate fill—in area below. Also, if any of the preprinted data is absent *(the area to the left of the label space lists the information that should appear)*, please provide it in the proper fill—in area*(s)* below. If the label is complete and correct, you need not complete Items I, III, V, and VI *(except VI-B which must be completed regardless)*. Complete all items if no label has been provided. Refer to the instructions for detailed item descriptions and for the legal authorizations under which this data is collected.

II. POLLUTANT CHARACTERISTICS

INSTRUCTIONS: Complete A through J to determine whether you need to submit any permit application forms to the EPA. If you answer "yes" to any questions, you must submit this form and the supplemental form listed in the parenthesis following the question. Mark "X" in the box in the third column if the supplemental form is attached. If you answer "no" to each question, you need not submit any of these forms. You may answer "no" if your activity is excluded from permit requirements; see Section C of the instructions. See also, Section D of the instructions for definitions of **bold—faced terms.**

SPECIFIC QUESTIONS	MARK 'X' YES	NO	FORM ATTACHED
A. Is this facility a **publicly owned treatment works** which results in a **discharge** to **waters of the U.S.**? (FORM 2A)		X	
B. Does or will this facility *(either existing or proposed)* include a **concentrated animal feeding operation** or **aquatic animal production facility** which results in a **discharge** to **waters of the U.S.**? (FORM 2B)		X	
C. Is this a facility which currently results in **discharges** to **waters of the U.S.** other than those described in A or B above? (FORM 2C)	X		N/A
D. Is this a proposed facility *(other than those described in A or B above)* which will result in a **discharge** to **waters of the U.S.**? (FORM 2D)		X	
E. Does or will this facility treat, store, or dispose of **hazardous wastes**? (FORM 3)	X		X
F. Do you or will you inject at this facility industrial or municipal effluent below the lowermost stratum containing, within one quarter mile of the well bore, underground sources of drinking water? (FORM 4)		X	
G. Do you or will you inject at this facility any produced water or other fluids which are brought to the surface in connection with conventional oil or natural gas production, inject fluids used for enhanced recovery of oil or natural gas, or inject fluids for storage of liquid hydrocarbons? (FORM 4)		X	
H. Do you or will you inject at this facility fluids for special processes such as mining of sulfur by the Frasch process, solution mining of minerals, in situ combustion of fossil fuel, or recovery of geothermal energy? (FORM 4)		X	
I. Is this facility a proposed **stationary source** which is one of the 28 industrial categories listed in the instructions and which will potentially emit 100 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an **attainment area**? (FORM 5)		X	
J. Is this facility a proposed **stationary source** which is NOT one of the 28 industrial categories listed in the instructions and which will potentially emit 250 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an **attainment area**? (FORM 5)		X	

III. NAME OF FACILITY

1 SKIP: GMC DELCO-REMY DIV. ANDERSON COLUMBUS AVE

IV. FACILITY CONTACT

A. NAME & TITLE *(last, first, & title)*	B. PHONE *(area code & no.)*		
2 STEWART, DANIEL ENVIRO. ENGR.	317	646	2824

V. FACILITY MAILING ADDRESS

A. STREET OR P.O. BOX

3 2401 COLUMBUS AVENUE

B. CITY OR TOWN	C. STATE	D. ZIP CODE
4 ANDERSON	IN	46011

VI. FACILITY LOCATION

A. STREET, ROUTE NO. OR OTHER SPECIFIC IDENTIFIER

5 2401 COLUMBUS AVENUE

B. COUNTY NAME

MADISON

C. CITY OR TOWN	D. STATE	E. ZIP CODE	F. COUNTY CODE *(if known)*
6 ANDERSON	IN	46011	

EPA Form 3510-1 (6-80)

NOV 19 1980

CONTINUE ON REVERSE

CONTINUED FROM THE FRONT

VII. SIC CODES (4-digit, in order of priority)

A. FIRST	B. SECOND
3694 (specify) ELECTRICAL & ELECTRONIC COMPONENTS FOR I.C. ENGINES	(specify)
C. THIRD	**D. FOURTH**
(specify)	(specify)

VIII. OPERATOR INFORMATION

A. NAME: GMC, DELCO-REMY ANDERSON COLUMBUS AVENUE

B. Is the name listed in Item VIII-A also the owner? [X] YES [ ] NO

C. STATUS OF OPERATOR (Enter the appropriate letter into the answer box; if "Other", specify.)
F = FEDERAL, S = STATE, P = PRIVATE, M = PUBLIC (other than federal or state), O = OTHER (specify)

P (specify)

D. PHONE (area code & no.): A 317 646 2824

E. STREET OR P.O. BOX: 2401 COLUMBUS AVENUE

F. CITY OR TOWN: B ANDERSON

G. STATE: IN

H. ZIP CODE: 46011

IX. INDIAN LAND

Is the facility located on Indian lands? [ ] YES [X] NO

X. EXISTING ENVIRONMENTAL PERMITS

A. NPDES (Discharges to Surface Water)	D. PSD (Air Emissions from Proposed Sources)
9 N N/A	9 P N/A
B. UIC (Underground Injection of Fluids)	**E. OTHER (specify)**
9 U N/A	9 4-80-1 (specify) WATER DISCHARGE PERMIT
C. RCRA (Hazardous Wastes)	**E. OTHER (specify)**
9 R N/A	9 (specify) SEE ATTACHED LIST

XI. MAP

Attach to this application a topographic map of the area extending to at least one mile beyond property bounderies. The map must show the outline of the facility, the location of each of its existing and proposed intake and discharge structures, each of its hazardous waste treatment, storage, or disposal facilities, and each well where it injects fluids underground. Include all springs, rivers and other surface water bodies in the map area. See instructions for precise requirements.

XII. NATURE OF BUSINESS (provide a brief description)

MANUFACTURING AND ASSEMBLY ELECTRICAL AND ELECTRONIC COMPONENTS FOR INTERNAL COMBUSTION ENGINE; E.G., DISTRIBUTORS, ALTERNATORS, STARTING MOTORS, ETC.

XIII. CERTIFICATION (see instructions)

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application and all attachments and that, based on my inquiry of those persons immediately responsible for obtaining the information contained in the application, I believe that the information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

A. NAME & OFFICIAL TITLE (type or print)	B. SIGNATURE	C. DATE SIGNED
E. E. REESE, GENERAL MANAGER	E. E. Reese	11-14-80

COMMENTS FOR OFFICIAL USE ONLY

C

Please print or type in the unshaded areas only
(fill—in areas are spaced for elite type, i.e., 12 characters/inch).

Form Approved OMB No. 158-S80004 428

FORM 3 RCRA

EPA

U.S. ENVIRONMENTAL PROTECTION AGENCY

HAZARDOUS WASTE PERMIT APPLICATION

Consolidated Permits Program

(This information is required under Section 3005 of RCRA.)

EPA I.D. NUMBER: S F | M T | 1 9 0 0 1 1 0 1 5 | T/A | C 1

FOR OFFICIAL USE ONLY

APPLICATION APPROVED	DATE RECEIVED (yr., mo., & day)	COMMENTS

II. FIRST OR REVISED APPLICATION

Place an "X" in the appropriate box in A or B below *(mark one box only)* to indicate whether this is the first application you are submitting for your facility or a revised application. If this is your first application and you already know your facility's EPA I.D. Number, or if this is a revised application, enter your facility's EPA I.D. Number in Item I above.

A. FIRST APPLICATION *(place an "X" below and provide the appropriate date)*

[X] 1. EXISTING FACILITY *(See instructions for definition of "existing" facility. Complete item below.)*

FOR EXISTING FACILITIES, PROVIDE THE DATE *(yr., mo., & day)* OPERATION BEGAN OR THE DATE CONSTRUCTION COMMENCED *(use the boxes to the left)*

C	YR.	MO.	DAY
8	0 9	0 1	0 1

[ ] 2. NEW FACILITY *(Complete item below.)*

FOR NEW FACILITIES, PROVIDE THE DATE *(yr., mo., & day)* OPERATION BEGAN OR IS EXPECTED TO BEGIN

YR.	MO.	DAY

B. REVISED APPLICATION *(place an "X" below and complete Item I above)*

[ ] 1. FACILITY HAS INTERIM STATUS

[ ] 2. FACILITY HAS A RCRA PERMIT

III. PROCESSES – CODES AND DESIGN CAPACITIES

A. PROCESS CODE – Enter the code from the list of process codes below that best describes each process to be used at the facility. Ten lines are provided for entering codes. If more lines are needed, enter the code(s) in the space provided. If a process will be used that is not included in the list of codes below, then describe the process *(including its design capacity)* in the space provided on the form *(Item III-C).*

B. PROCESS DESIGN CAPACITY – For each code entered in column A enter the capacity of the process.

1. AMOUNT – Enter the amount.
2. UNIT OF MEASURE – For each amount entered in column B(1), enter the code from the list of unit measure codes below that describes the unit of measure used. Only the units of measure that are listed below should be used.

PROCESS	PROCESS CODE	APPROPRIATE UNITS OF MEASURE FOR PROCESS DESIGN CAPACITY
Storage:		
CONTAINER *(barrel, drum, etc.)*	S01	GALLONS OR LITERS
TANK	S02	GALLONS OR LITERS
WASTE PILE	S03	CUBIC YARDS OR CUBIC METERS
SURFACE IMPOUNDMENT	S04	GALLONS OR LITERS
Disposal:		
INJECTION WELL	D79	GALLONS OR LITERS
LANDFILL	D80	ACRE-FEET *(the volume that would cover one acre to a depth of one foot)* OR HECTARE-METER
LAND APPLICATION	D81	ACRES OR HECTARES
OCEAN DISPOSAL	D82	GALLONS PER DAY OR LITERS PER DAY
SURFACE IMPOUNDMENT	D83	GALLONS OR LITERS

PROCESS	PROCESS CODE	APPROPRIATE UNITS OF MEASURE FOR PROCESS DESIGN CAPACITY
Treatment:		
TANK	T01	GALLONS PER DAY OR LITERS PER DAY
SURFACE IMPOUNDMENT	T02	GALLONS PER DAY OR LITERS PER DAY
INCINERATOR	T03	TONS PER HOUR OR METRIC TONS PER HOUR; GALLONS PER HOUR OR LITERS PER HOUR
OTHER *(Use for physical, chemical, thermal or biological treatment processes not occurring in tanks, surface impoundments or incinerators. Describe the processes in the space provided; Item III-C.)*	T04	GALLONS PER DAY OR LITERS PER DAY

UNIT OF MEASURE	UNIT OF MEASURE CODE
GALLONS	G
LITERS	L
CUBIC YARDS	Y
CUBIC METERS	C
GALLONS PER DAY	U
LITERS PER DAY	V
TONS PER HOUR	D
METRIC TONS PER HOUR	W
GALLONS PER HOUR	E
LITERS PER HOUR	H
ACRE-FEET	A
HECTARE-METER	F
ACRES	B
HECTARES	Q

EXAMPLE FOR COMPLETING ITEM III *(shown in line numbers X-1 and X-2 below):* A facility has two storage tanks, one tank can hold 200 gallons and the other can hold 400 gallons. The facility also has an incinerator that can burn up to 20 gallons per hour.

C DUP T/A C 1

LINE NUMBER	A. PROCESS CODE (from list above)	B. PROCESS DESIGN CAPACITY 1. AMOUNT (specify)	B. PROCESS DESIGN CAPACITY 2. UNIT OF MEASURE (enter code)	FOR OFFICIAL USE ONLY	LINE NUMBER	A. PROCESS CODE (from list above)	B. PROCESS DESIGN CAPACITY 1. AMOUNT	B. PROCESS DESIGN CAPACITY 2. UNIT OF MEASURE (enter code)	FOR OFFICIAL USE ONLY
X-1	S 0 2	600	G		5				
X-2	T 0 3	20	E		6				
1	S 0 1	1500	G		7				
2					8				
3					9				
4					10				

Continued from the front.

III. PROCESSES *(continued)*

C. SPACE FOR ADDITIONAL PROCESS CODES OR FOR DESCRIBING OTHER PROCESSES *(code "T04")*. FOR EACH PROCESS ENTERED HERE INCLUDE DESIGN CAPACITY.

IV. DESCRIPTION OF HAZARDOUS WASTES

A. EPA HAZARDOUS WASTE NUMBER – Enter the four–digit number from 40 CFR, Subpart D for each listed hazardous waste you will handle. If you handle hazardous wastes which are not listed in 40 CFR, Subpart D, enter the four–digit number*(s)* from 40 CFR, Subpart C that describes the characteristics and/or the toxic contaminants of those hazardous wastes.

B. ESTIMATED ANNUAL QUANTITY – For each **listed waste** entered in column A estimate the quantity of that waste that will be handled on an annual basis. For each **characteristic** or **toxic contaminant** entered in column A estimate the total annual quantity of all the non–listed waste*(s)* that will be handled which possess that characteristic or contaminant.

C. UNIT OF MEASURE – For each quantity entered in column B enter the unit of measure code. Units of measure which must be used and the appropriate codes are:

ENGLISH UNIT OF MEASURE	CODE	METRIC UNIT OF MEASURE	CODE
POUNDS	P	KILOGRAMS	K
TONS	T	METRIC TONS	M

If facility records use any other unit of measure for quantity, the units of measure must be converted into one of the required units of measure taking into account the appropriate density or specific gravity of the waste.

D. PROCESSES

1. PROCESS CODES:
   For listed hazardous waste: For each **listed** hazardous waste entered in column A select the code*(s)* from the list of process codes contained in Item III to indicate how the waste will be stored, treated, and/or disposed of at the facility.
   For non–listed hazardous wastes: For each characteristic or toxic contaminant entered in column A, select the code*(s)* from the list of process codes contained in Item III to indicate **all** the processes that will be used to store, treat, and/or dispose of all the non–listed hazardous wastes that possess that characteristic or toxic contaminant.
   Note: Four spaces are provided for entering process codes. If more are needed: (1) Enter the first three as described above; (2) Enter "000" in the extreme right box of Item IV-D(1); and (3) Enter in the space provided on page 4, the line number and the additional code*(s)*.

2. PROCESS DESCRIPTION: If a code is not listed for a process that will be used, describe the process in the space provided on the form.

NOTE: HAZARDOUS WASTES DESCRIBED BY MORE THAN ONE EPA HAZARDOUS WASTE NUMBER – Hazardous wastes that can be described by more than one EPA Hazardous Waste Number shall be described on the form as follows:

1. Select one of the EPA Hazardous Waste Numbers and enter it in column A. On the same line complete columns B,C, and D by estimating the total annual quantity of the waste and describing all the processes to be used to treat, store, and/or dispose of the waste.
2. In column A of the next line enter the other EPA Hazardous Waste Number that can be used to describe the waste. In column D(2) on that line enter "included with above" and make no other entries on that line.
3. Repeat step 2 for each other EPA Hazardous Waste Number that can be used to describe the hazardous waste.

EXAMPLE FOR COMPLETING ITEM IV *(shown in line numbers X-1, X-2, X-3, and X-4 below)* – A facility will treat and dispose of an estimated 900 pounds per year of chrome shavings from leather tanning and finishing operation. In addition, the facility will treat and dispose of three non–listed wastes. Two wastes are corrosive only and there will be an estimated 200 pounds per year of each waste. The other waste is corrosive and ignitable and there will be an estimated 100 pounds per year of that waste. Treatment will be in an incinerator and disposal will be in a landfill.

LINE NO.	A. EPA HAZARD. WASTE NO. *(enter code)*	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE *(enter code)*	D. PROCESSES 1. PROCESS CODES *(enter)*	D. PROCESSES 2. PROCESS DESCRIPTION *(if a code is not entered in D(1))*
X-1	K 0 5 4	900	P	T 0 3 D 8 0	
X-2	D 0 0 2	400	P	T 0 3 D 8 0	
X-3	D 0 0 1	100	P	T 0 3 D 8 0	
X-4	D 0 0 2				included with above

Continued from page 2.

428

NOTE: Photocopy this page before completing if you hav[illegible]re than 26 wastes to list. [illegible]rm Approved OMB No. 158-S80004

EPA I.D. NUMBER (enter from page 1)															FOR OFFICIAL USE ONLY														
S W	1	N	T	1	9	0	0	1	1	0	1	5	T/A	C 1	S W	D	U	P		T/A	C 2	D	U	P					
1 2												13	14	15	1 2				13	14	15	23			26					

IV. DESCRIPTION OF HAZARDOUS WASTES (continued)

LINE NO.	A. EPA HAZARD. WASTE NO. (enter code)	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE (enter code)	D. PROCESSES 1. PROCESS CODES (enter)	D. PROCESSES 2. PROCESS DESCRIPTION (if a code is not entered in D(1))
	23 - 26	27 - 35	36	27 - 29 / 27 - 29 / 27 - 29 / 27 - 29	
1	F 0 1 7	3	T	S 0 1	
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
	23 - 26	27 - 35	36	27 - 29 / 27 - 29 / 27 - 29 / 27 - 29	

Continued from the front.

IV. DESCRIPTION OF HAZARDOUS WASTES *(continued)*

E. USE THIS SPACE TO LIST ADDITIONAL PROCESS CODES FROM ITEM D(1) ON PAGE 3.

EPA I.D. NO. *(enter from page 1)*

															T/A	C
F	I	N	T	1	9	0	0	1	1	0	1	5				6
1	2											13	14	15		

V. FACILITY DRAWING

All **existing** facilities must include in the space provided on page 5 a scale drawing of the facility *(see instructions for more detail).*

VI. PHOTOGRAPHS

All existing facilities must include photographs *(aerial or ground–level)* that clearly delineate all existing structures; existing storage, treatment and disposal areas; and sites of future storage, treatment or disposal areas *(see instructions for more detail).*

VII. FACILITY GEOGRAPHIC LOCATION

LATITUDE *(degrees, minutes, & seconds)*	LONGITUDE *(degrees, minutes, & seconds)*
40 05 31 N (65 66 / 67 68 / 69 - 71)	085 40 09 W (72 - 74 / 75 76 / 77 - 79)

VIII. FACILITY OWNER

☐ A. If the facility owner is also the facility operator as listed in Section VIII on Form 1, "General Information", place an "X" in the box to the left and skip to Section IX below.

B. If the facility owner is not the facility operator as listed in Section VIII on Form 1, complete the following items:

1. NAME OF FACILITY'S LEGAL OWNER	2. PHONE NO. *(area code & no.)*
E (15 16 - 55)	56 - 58 / 59 - 61 / 62 - 65

3. STREET OR P.O. BOX	4. CITY OR TOWN	5. ST.	6. ZIP CODE
F (15 16 - 45)	G (15 16 - 40)	41 42	47 - 51

IX. OWNER CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

A. NAME *(print or type)*	B. SIGNATURE	C. DATE SIGNED
E. E. REESE, GENERAL MANAGER	E. E. Reese	11-14-80

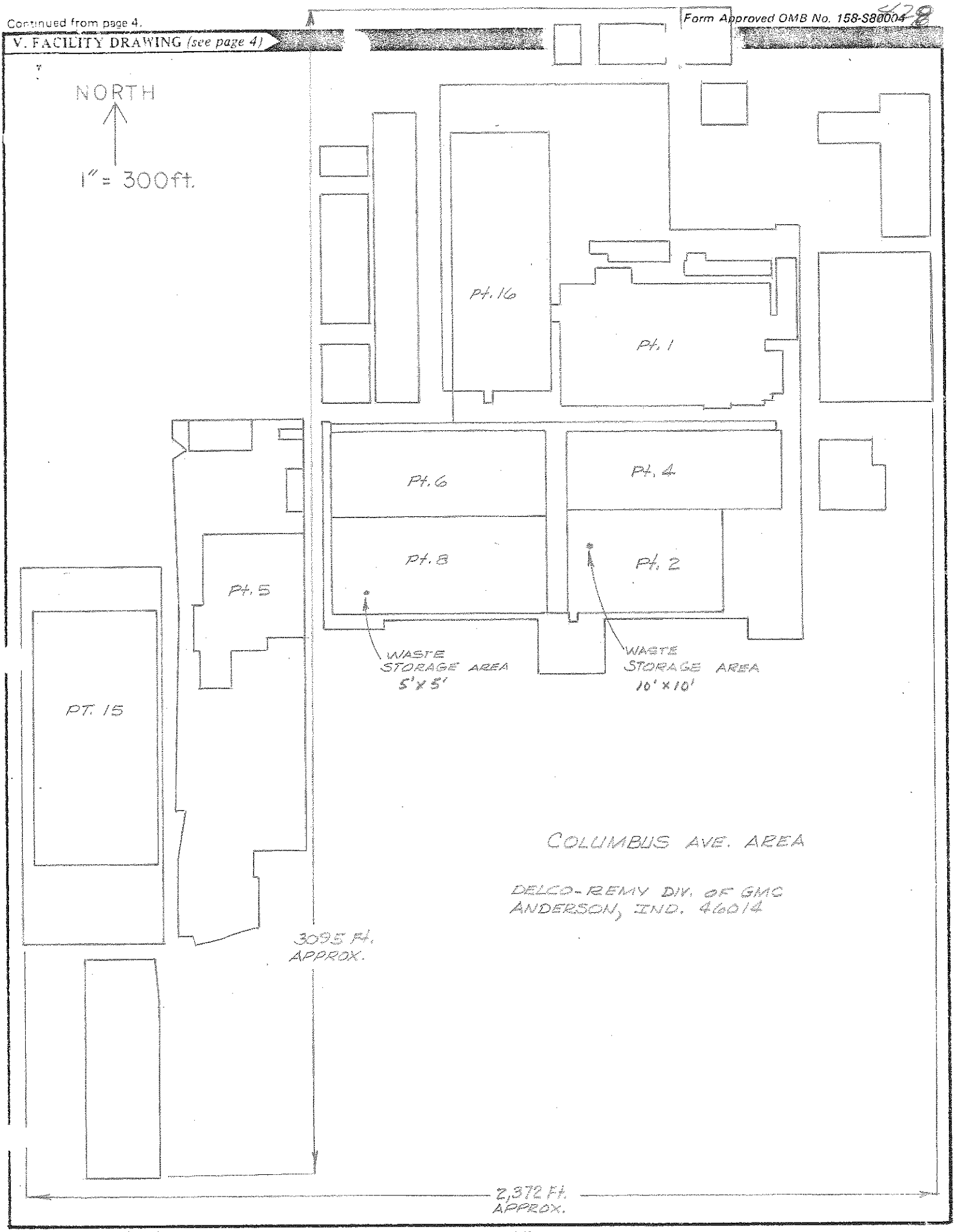
X. OPERATOR CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

A. NAME *(print or type)*	B. SIGNATURE	C. DATE SIGNED

Form Approved OMB No. 158-S80004

V. FACILITY DRAWING *(see page 4)*



428

Delco Remy

Division of General Motors Corporation 2401 Columbus Avenue P.O. Box 2439 Anderson, Indiana 46011

November 17, 1980

EPA Region V
RCRA Activities
P.O. Box 7861
Chicago, IL 60680

Dear Sirs:

Included with this mailing is our hazardous waste permit application. As you will note, we have not included our EPA I.D. number as we had not received it when the application was submitted.

At the time of our telephone conversation, Richard Shandross of your office indicated that your records showed that a notification form had not been received from us. Attached are copies of the notification forms we submitted as well as a returned mailing receipt which shows these forms were received by your office on August 15, 1980.

I should explain that the Delco-Remy facilities in Anderson have two non-continuous facilities and, thus, by regulation are required to submit two separate applications. Both facilities have the same mailing address, and are owned and operated by the same management. In the May, 1980 notification packet distributed by the EPA Administrator, we received one packet and were assigned one number (IND075960286 - see attached label). However, having two facilities with the same address, I am not sure which facility the notification packet and I.D. number should cover.

We would be quite agreeable to use one single identification number for both facilities as all correspondence and recordkeeping for both facilities will be handled by a central office.

Should you have any questions, please contact this office at 317-646-2824.

Sincerely,

Daniel L. Stewart

Daniel L. Stewart
Delco-Remy Division, G.M.C.
Plant Engineering Dept.

DLS:esw
Enc.

Not Responsive

General Motors Parts Division
General Motors Corporation

Inter-Organization Letter

IN 190 011 015
G ISD PA.
See IND 980 503 940
not in inventory
IN T 190 011 015

To See Below

Location

From Mr. J. W. Cagle

Location

Subject Delegation of Authority to Sign Reports Under EPA Consolidated Permit Programs

Date March 24, 1981

TO: All Parts Plant Managers
All P.D.C. Managers
All Truck and Coach Managers

As required under Environmental Protection Agency Consolidated Permit Programs, Part 122, Section 122.6, the position of Plant Manager is hereby designated as my duly authorized representative for your facility. As such, the Plant Manager is authorized to sign all reports required by permits, and other information requested by the EPA Regional Administrator and/or the State/Local Program Director.

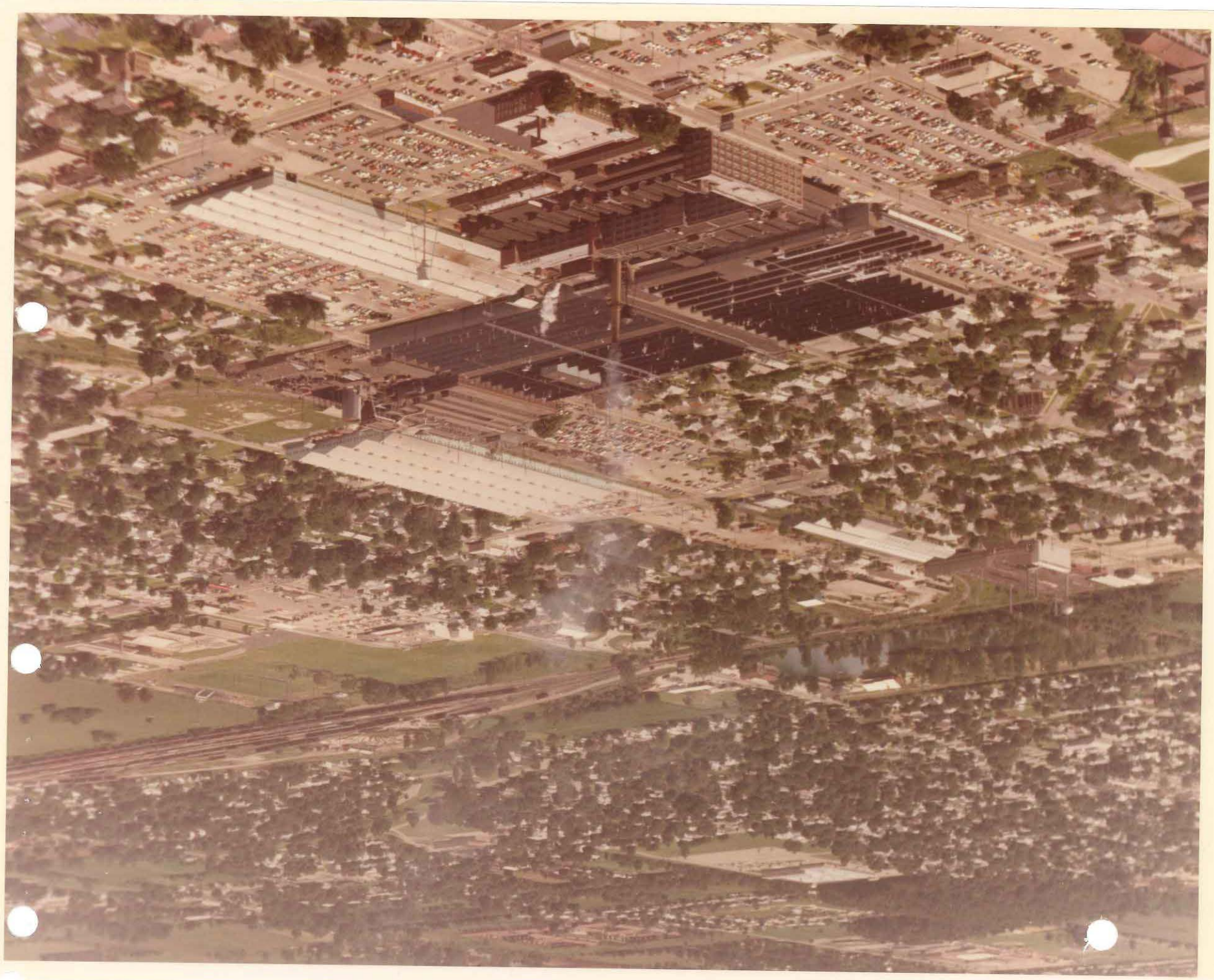
In the absence of the person occupying the designated position due to vacation, illness, or other reasons, the person temporarily responsible for the operation of the facility or activity is my duly authorized representative.

Any questions should be directed to the Environmental Control Group - Flint Central Office.

J. W. Cagle
General Manager
General Motors Warehousing and
Distribution Division

JWC/vp

cc: EPA Regional Administrator



m653-81

ANDERSON COLUMBUS AVE

AUG '79

— SINCE 1927 —

AERIAL SURVEYS

HENRY DeWOLF

[illegible] Dr.

[illegible] N.Y. 14609

[illegible] ON REQUEST

ORDER BY NUMBER

24

A.3 Groundwater/Soil

Hard copy

Delco Remy

Division of General Motors Corporation 2401 Columbus Avenue P.O. Box 2439 Anderson, Indiana 46018-9986

Sylvester
3-17-93

IND 980 503 940

Nov 12 9 52 AM '92

[illegible]
AND HAZARDOUS
WASTE MGMT
DEM

November 9, 1992

RECEIVED APR 19 1993
WMD RCRA
RECORD CENTER

Ms. Ruth Ireland
Department of Environmental Management
Office of Solid & Hazardous Waste
105 South Meridian Street
P. O. Box 6015
Indianapolis, IN 46206-6015

Re: RCRA Detection Monitoring, Muncie, Indiana

Dear Ms. Ireland;

The enclosed report (two copies) provides the statistical analysis of the September 1, 1992 detection monitoring groundwater sample results. This sampling event marks the completion of the detection monitoring requirements. As in the previous reports, no statistically significant indication of groundwater contamination was observed.

Sincerely,

DELCO REMY DIVISION

Timothy J Renner

Timothy J. Renner, P.E.
317-646-3292

Order adopted 10-4-89
to cont. 3 years after cert. of clean closure

cc: Rod Hoffman

5HW-13

APR 7 1983

Mr. Daniel Stewart
Environmental Engineer
GMC Delco-Remy Division
2401 Columbus Ave.
Anderson, Indiana 46011

Dear Mr. Stewart:

Please be advised that the United States Environmental Protection Agency (U.S. EPA) erred when we sent you the February 11, 1983, Interim Status Acknowledgement letter with the U.S. EPA identification number IND980503825. This number belongs th the GMC Delco-Remy Division facility located at Acre Area in Anderson. The correct identification number for your 2401 Columbus Avenue, Anderson, facility is IND980503940.

I have enclosed a corrected copy of the Interim Status Acknowledgement letter with your correct identification number.

Please accept my apologies for the error and any inconvenience which may have resulted. I may be reached at (312) 886-7449, if you have any questions regarding this letter or the enclosure.

Sincerely yours,

Arthur S. Kawatachi
Regional Project Officer

Enclosure

cc: E. E. Reese, Gen. Mgr., GMC Delco-Remy Div.
Indiana State Board of Health

5HW-13:WMD:WMB:SPIS:RAIU:A.KAWATACHI:M.OLIVER:4-7-83

Initials	Typist	Author	Other Staff	RAIU Chief	SPIS Secy.	SPIS Chief	WMB Chief	WMD Director
	MMO 4/7/83		OK 4/7/83					

RCRA DETECTION MONITORING REPORT
PART 2, SEPTEMBER 1, 1992

GMC/DELCO REMY FACILITY MUNCIE, INDIANA

Prepared for:

DELCO REMY
DIVISION OF GENERAL MOTORS
2401 Columbus Avenue
Anderson, Indiana 46018

Prepared by:

MITTELHAUSER CORPORATION
1240 Iroquois Drive
Naperville, Illinois 60563

Project Number 935

November 1992

RCRA DETECTION MONITORING REPORT
Part 2, September 1, 1992
GMC/Delco Remy

Final Semiannual Groundwater Monitoring Event

1.0 INTRODUCTION

This report presents statistical and hydrogeological information developed from the September 1, 1992 semiannual groundwater sampling event at the GMC/Delco Remy facility, Muncie, Indiana. The detection monitoring reports have been prepared in accordance with the reporting requirements specified in the Agreed Order, September 29, 1989, for the Muncie facility.

The purpose of the detection monitoring program is to determine if the former surface impoundments at the Delco Remy facility have had an effect on the groundwater quality. The statistical analysis included in this report compares the values of groundwater sample indicator parameters from the current sampling event to previously established background values. The results of the current sampling event indicate that a release of contamination from the former surface impoundments has not taken place. At no time during the detection monitoring period has a release been determined. Therefore, per the Agreed Order, Cause No. 88-S-J-192, GMC/Delco Remy has completed the RCRA Clean Closure detection monitoring for the unit at the Muncie facility. This report constitutes the final semiannual groundwater monitoring report.

The location of the RCRA monitoring wells at the Delco Remy facility are shown in relation to the former surface impoundments in Figure 1. Monitoring wells W6 and P3 are the designated upgradient wells (site hydrogeology presented in the

GMC/Delco Remy
RCRA Detection Monitoring
Statistical Analysis

Report Date: 11/06/92
Sampling Date: 09/01/92
0935RA01.JWM

Accelerated Monitoring Program Groundwater Report, prepared by Mittelhauser Corporation, November 1989). Monitoring wells W1, W3, W5, and W7 are the designated downgradient wells. The static water levels and potentiometric surface for the date of the current sampling event are also illustrated in Figure 1.

2.0 STATISTICAL ANALYSIS METHODOLOGY

The statistical analysis of the groundwater analytical data presented in this report conforms with Subpart F of 40 CFR, Part 265.

2.1 BACKGROUND GROUNDWATER SAMPLING AND STATISTICAL ANALYSIS

An accelerated groundwater monitoring program was implemented at the Delco Remy facility during October 1988 through January 1989, to establish background groundwater quality. Upgradient and downgradient wells were sampled four times (once per month) during this period. The groundwater samples were analyzed for the following: groundwater contamination indicator parameters, groundwater quality parameters, and EPA interim drinking water standards, as specified in 40 CFR 265.92.

Quadruplicate analyses of the indicator parameters (pH, specific conductance, total organic carbon, total organic halogen, and lead) were performed on each upgradient well sample, per sampling event. Background statistics were then calculated from the replicate analytical values for each indicator parameter. The statistical results of the four background sampling events (upgradient wells only) were then used to determine the overall background statistics per indicator parameter (Table 1).

GMC/Delco Remy
RCRA Detection Monitoring
Statistical Analysis

Report Date: 11/06/92
Sampling Date: 09/01/92
0935RA01.JWM

TABLE 1

BACKGROUND STATISTICS

PARAMETER	MEAN	VARIANCE
pH*	7.23 (6.03×10^{-8})	0.19 (1.5×10^{-14})
specific conductance	665 umhos/cm	31,028
total organic carbon	26.75 mg/L	215.32
total organic halogen	0.0112 mg/L	0.2312
lead	<0.005 mg/L	0.0

* Conversion to hydrogen ion activity in parentheses.

A detailed discussion of the procedures and calculations used in establishing the background statistics is included in the above-referenced groundwater report (November 1989). The selection of the statistical method (average replicate t-test) was based on technical guidance available in the RCRA Groundwater Monitoring Technical Enforcement Guidance Document (TEGD), Appendix B, September 1986.

2.2 SEMIANNUAL GROUNDWATER SAMPLING AND TEST STATISTICS

Groundwater samples collected on September 1, 1992 were submitted to Heritage Laboratories, Inc., Indianapolis, Indiana,

for quadruplicate analysis of groundwater contamination indicator parameters. Field measurements of static water level, pH, and specific conductance were also performed and recorded for each well sampled.

Replicate means of the semiannual groundwater sample results were calculated for each indicator parameter, per monitoring well sample, and are presented in Table 2. Each replicate mean was compared to background statistics (Table 1) by calculating a test statistic. The calculated test statistic was then compared to a theoretical t-statistic distribution, in order to determine if the replicate mean of the groundwater sample differed significantly from the background mean.

Groundwater contamination is indicated for specific conductance, total organic carbon, total organic halogen, and lead, only if a calculated test statistic exceeds the critical statistic at the overall significance level of 1 percent, for a one-tailed distribution (Table 15, Appendix B, TEGD, September, 1986). Statistical significance (i.e., contamination) is indicated in the pH data if the absolute value of the test statistic is greater than the absolute value of the critical statistic for a two-tailed t-statistic distribution. Example calculations of replicate means, test statistics, and statistical significance are presented in Section 5.0 of this report.

3.0 RESULTS AND CONCLUSIONS

The results of the statistical calculations are summarized in Table 2. Because no test statistic, t^*_m, exceeds the critical statistic, t_c, for the corresponding indicator parameter, a statistical indication of groundwater contamination is absent in the September 1, 1992 groundwater sample results.

4.0 GROUNDWATER FLOW DIRECTION

The potentiometric surface map included in this report (Figure 1) was generated from static water levels measured on September 1, 1992. The groundwater flow direction indicated on the map is from east and northeast to the west and southwest. This flow direction is consistent with the flow directions determined in the groundwater monitoring report (November 1989), and other subsequent sampling/measuring events. The detection monitoring system therefore continues to monitor upgradient and downgradient groundwater according to the original design requirements.

5.0 EXAMPLE CALCULATIONS

5.1 EXAMPLE 1

The replicate mean and test statistic are calculated from the specific conductance data recorded on September 1, 1992, for monitoring well W6.

SPECIFIC CONDUCTANCE

Replicate Values:

A = 640 umhos/cm
B = 640
C = 630
D = 640

1) Replicate Mean

Replicate Mean = $\overline{X}_m$ = (640 + 640 + 630 + 640)/4

$\overline{X}_m$ = 637.5 umhos/cm

2) Test Statistic

The test statistic, t^*_m, is then computed by:

$$t^*_m = \frac{\overline{X}_m - \overline{X}_b}{S_b(1 + 1/n_b o_b)^{1/2}}$$

where:

$\bar{X}_m$ = replicate mean

$\bar{X}_b$ = background mean

S_b = background standard deviation

n_b = number of background monitoring wells

o_b = number of sampling events (background)

and:

$\bar{X}_m$ = 637.5

$\bar{X}_b$ = 665

S_b = 176.15 (square root of variance)

n_b = 2

o_b = 4

so:

$$t^*_m = \frac{637.5 - 665}{176.15\ (1 + 1/8\ )^{1/2}} = -0.147$$

3) Critical Statistic

The appropriate critical statistic, t_c, is obtained from published tables (Table 15, TEGD, Sept. 1986, Appendix B),

where:

Overall significance level = 1 percent;

Total number of monitoring wells = 6; and

Degrees of freedom = n = $(n_b \times o_b) - 1$ = 7

therefore:

t_c (one tailed test) = 4.793

GMC/Delco Remy
RCRA Detection Monitoring
Statistical Analysis

Report Date: 11/06/92
Sampling Date: 09/01/92
0935RA01.JWM

4) Statistical Significance

Because -0.147 is less than 4.793, a statistically significant change in the specific conductance for the replicate measurements for monitoring well W6 is not indicated in the September 1, 1992 analytical data.

5.2 EXAMPLE 2

The replicate mean and test statistic are calculated for a replicate data set containing values less than and greater than the laboratory detection limit (Cohen's Method, TEGD, 1986). The results of the analysis for total organic halogen (TOX) in sample W7, collected on September 1, 1992, are used in the example calculation.

TOX

Replicate Values:

A	< 0.01 mg/L
B	< 0.01
C	0.02
D	< 0.01

1) Replicate Mean

A mean is calculated for values greater than or equal to the detection limit, and is given by:

$$\bar{X}'_m = \sum_{k=1}^{p'_m} X'_m / p'_m$$

where:

$\bar{X}'_m$ = measurements greater than or equal to the limit of detection

p'_m = number of measurements greater than or equal to the limit of detection

therefore:

$\bar{X}'_m$ = 0.02 mg/L / 1 = 0.02

A variance is then established for values greater than or equal to the limit of detection, and is given by:

$$S_m^{2\prime} = \sum_{k=1}^{p'_m} (X'_m - \bar{X}'_m)^2 / (p'_m - 1)$$

Values necessary for the calculation of an adjusted mean considering the measurements less than the detection limit are obtained as follows:

h_m = proportion of replicate measurements below the detection limit at the specified well on the specified sampling event

DL_m = detection limit for measurements from the specified monitoring well, for the specified sampling event

T_m = parameter estimate = $S_m^{2\prime} / (\bar{X}'_m - DL_m)^2$

Λ = a parameter estimate obtained using T_m and h_m (Table 5, TEGD, Appendix B, September 1986)

In this example,

h_m = 1/4 = 0.25

$S_m^{2\prime}$ = $(0.02 - 0.02)^2 / (1 - 1) = 0$

DL^m = 0.01 mg/L (laboratory detection limit for TOX);

therefore:

T_m = $0 / (0.02 - 0.01)^2 = 0$; and,

Λ = 0.31862

The adjusted mean, considering the values which fall above and below detection limit, is then calculated as follows:

$$\bar{X}_m = \bar{X}'_m - \Lambda (\bar{X}'_m - DL_m)$$

$$= 0.02 - 0.31826 (0.02 - 0.01)$$

$$= 0.168$$

This adjusted mean is then used in calculating the test statistic, according to the test statistic formula given in Example 1.

5.3 EXAMPLE 3

If all of the values in the replicate data set are below the limit of detection, the replicate mean will be less than the limit of detection, for example:

Monitoring Well Sample W5, September 1, 1992.

		Lead (mg/L)
Replicate Values:	A	< 0.005
	B	< 0.005
	C	< 0.005
	D	< 0.005
Replicate Mean	=	< 0.005 mg/L

Because an acceptable laboratory detection limit has been achieved throughout the detection monitoring program, groundwater contamination is not indicated in this example where the replicate mean is less than the detection limit.

TABLE 2

935HQ

SEMI-ANNUAL GROUNDWATER SAMPLING RESULTS AND TEST STATISTICS

SAMPLING DATE: SEPTEMBER 1, 1992

Indicator Parameter: pH
Background Mean = 7.23 (6.03x10E-8)
Background Variance = 0.19 (1.5x10E-14)

SAMPLE	REPLICATE VALUES	REPLICATE MEAN	TEST STATISTIC	CRITICAL STATISTIC
P3	7.00	7.08	-0.324	5.225
	7.10	(8.3x10E-8)		
	7.10			
	7.10			
W6	7.6	7.55	0.692	5.225
	7.5	(2.8x10E-8)		
	7.6			
	7.5			
W3	6.7	6.73	-1.081	5.225
	6.8	(1.86x10E-7)		
	6.7			
	6.7			
W1	7.1	7.05	-0.389	5.225
	7.0	(8.9x10E-8)		
	7.0			
	7.1			
W7	6.7	6.68	-1.189	5.225
	6.6	(2.08x10E-7)		
	6.7			
	6.7			
W5	6.9	6.93	-0.660	5.225
	6.9	(1.18x10E-7)		
	6.9			
	7.0			
W7-Dup	6.7	6.7	-1.146	5.225
		(1.99x10E-7)		

Indicator Parameter: Specific Conductance
Background Mean = 665 umhos/cm
Background Variance = 31,028

SAMPLE	REPLICATE VALUES	REPLICATE MEAN	TEST STATISTIC	CRITICAL STATISTIC
P3	1,200	1,200	2.863	4.793
	1,200			
	1,200			
	1,200			
W6	640	637.5	-0.147	4.793
	640			
	630			
	640			
W3	1,300	1,300	3.399	4.793
	1,300			
	1,300			
	1,300			
W1	1,500	1,500	4.469	4.793
	1,500			
	1,500			
	1,500			
W7	1,400	1,400	3.934	4.793
	1,400			
	1,400			
	1,400			
W5	1,300	1,300	3.399	4.793
	1,300			
	1,300			
	1,300			
W-7 Dup	1,400	1,400	2.863	4.793

NOTES: Conversion to hydrogen ion activity in parentheses.
Statistical methods detailed in RCRA Groundwater Monitoring Technical Enforcement Guidance Document; Sept. 1986, App. B.

TABLE 2

(Page 2 of 3)

SEMI-ANNUAL GROUNDWATER SAMPLING RESULTS AND TEST STATISTICS

SAMPLING DATE: SEPTEMBER 1, 1992

Indicator Parameter: Total Organic Carbon
Background Mean = 26.74 mg/L
Background Variance = 215.32

SAMPLE	REPLICATE VALUES	REPLICATE MEAN	TEST STATISTIC	CRITICAL STATISTIC
P3	10	7.08	-1.263	4.793
	6.8			
	8.1			
	6.2			
W6	4.9	4.55	-1.426	4.793
	4.2			
	5.3			
	3.8			
W3	6.0	5.68	-1.353	4.793
	6.6			
	4.7			
	5.4			
W1	11	11.5	-0.979	4.793
	12			
	11			
	12			
W7	7.4	8.03	-1.202	4.793
	7.4			
	9.2			
	8.1			
W5	7.9	6.85	-1.278	4.793
	6.5			
	6.1			
	6.9			
W7-Dup	8.2	8.2	-1.191	4.793

Indicator Parameter: Total Organic Halogen
Background Mean = 0.0112 mg/L
Background Variance = 0.23122

SAMPLE	REPLICATE VALUES	REPLICATE MEAN	TEST STATISTIC	CRITICAL STATISTIC
P3	<0.01	<0.01	--	4.793
	<0.01			
	<0.01			
	<0.01			
W6	<0.01	<0.01	--	4.793
	<0.01			
	<0.01			
	<0.01			
W3	<0.01	0.0168	0.011	4.793
	<0.01			
	<0.01			
	0.02			
W1	<0.01	<0.01	--	4.793
	<0.01			
	<0.01			
	<0.01			
W7	<0.01	0.0168	0.011	4.793
	<0.01			
	0.02			
	<0.01			
W5	<0.01	<0.01	--	4.793
	<0.01			
	<0.01			
	<0.01			
W7-Dup	<0.01	<0.01	--	4.793

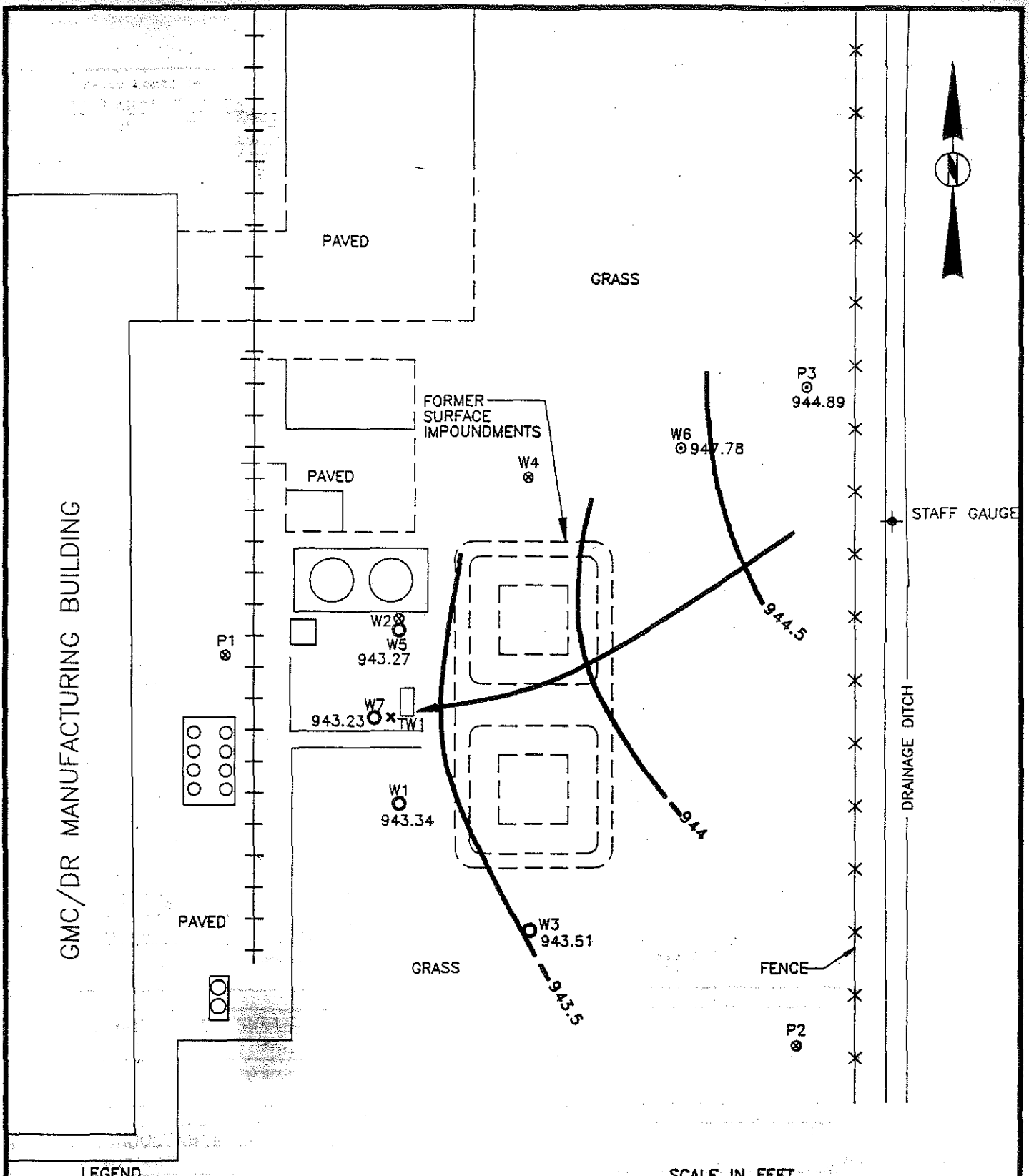
Statistical methods detailed in RCRA Groundwater Monitoring Technical Enforcement Guidance Document; Sept. 1986, App. B.

SEMI-ANNUAL GROUNDWATER SAMPLING RESULTS AND TEST STATISTICS
SAMPLING DATE: SEPTEMBER 1, 1992

Indicator Parameter: Lead
Background Mean = <0.005 mg/L
Background Variance = N/A

SAMPLE	REPLICATE VALUES (mg/L)	REPLICATE MEAN (mg/L)	TEST STATISTIC	CRITICAL STATISTIC
P3	<0.005	<0.005	--	4.793
	<0.005			
	<0.005			
	<0.005			
W6	<0.005	<0.005	--	4.793
	<0.005			
	<0.005			
	<0.005			
W3	<0.005	<0.005	--	4.793
	<0.005			
	<0.005			
	<0.005			
W1	<0.005	<0.005	--	4.793
	<0.005			
	<0.005			
	<0.005			
W7	<0.005	<0.005	--	4.793
	<0.005			
	<0.005			
	<0.005			
W5	<0.005	<0.005	--	4.793
	<0.005			
	<0.005			
	<0.005			
W7-Dup	<0.005	<0.005	--	4.793

Statistical methods detailed in RCRA Groundwater Monitoring Technical Enforcement Guidance Document; Sept. 1986, App. B.



LEGEND

- GROUNDWATER FLOW DIRECTION
- EQUIPOTENTIAL LINE
- ⊙ RCRA UPGRADIENT MONITORING WELLS
- O RCRA DOWNGRADIENT MONITORING WELLS
- ⊗ PIEZOMETER
- × OTHER OBSERVATION WELL
- 944 STATIC WATER ELEVATION

SCALE IN FEET

0 50 100 200

NO.	DATE	REV. BY	REVISIONS

ENG.	TRB
CHK. BY	BCP
DRAWN	RGW
DATE	4-23-92
SCALE	AS SHOWN
CAD NO.	935401A
PRJ NO.	935.4-01

POTENTIOMETRIC SURFACE OF UPPER SAND AQUIFER SEPTEMBER 1, 1992 DELCO REMY MUNCIE, IN

MITTELHAUSER corporation Figure 1

CERTIFICATE OF ANALYSIS

Service Location

HERITAGE LABORATORIES, INC.
7901 W. MORRIS ST.
INDIANAPOLIS, IN 46231
(317)243-8305

Received	Project	Lab ID
01-SEP-92	538	A260578
Complete	**PO Number**	
16-SEP-92	DRD 448612 *	
Printed	**Sampled**	
17-SEP-92	01-SEP-92 10:00	

Report To

TIM RENNER
DELCO REMY
PLANT 1 ROOM 555
2401 COLUMBUS AVENUE
ANDERSON, IN 46018

Bill To

DISBURSEMENT ANALYSIS DEP
AUTOMOTIVE COMPONENTS GROUP
P.O. BOX 436040
PONTIAC, MI 48343-6040

Sample Description

PLANT LOCATION: MUNCIE, IN
SAMPLE ID: P-3
PART OR SPEC NUMBER: GPR-0448612001

PH (AQUEOUS) SW846-9040

Analyst: J. WALLACE Analysis Date: 02-SEP-92 Test: G607.5.0

Parameter	Result	Det. Limit	Units
PH	7.0	0.1	Std. Units

PH (AQUEOUS) SW846-9040

Analyst: J. WALLACE Analysis Date: 02-SEP-92 Test: G607.5.1

Parameter	Result	Det. Limit	Units
PH	7.1	0.1	Std. Units

PH (AQUEOUS) SW846-9040

Analyst: J. WALLACE Analysis Date: 02-SEP-92 Test: G607.5.2

Parameter	Result	Det. Limit	Units
PH	7.1	0.1	Std. Units

PH (AQUEOUS) SW846-9040

Analyst: J. WALLACE Analysis Date: 02-SEP-92 Test: G607.5.3

Parameter	Result	Det. Limit	Units
PH	7.1	0.1	Std. Units

SPECIFIC CONDUCTANCE SW846-9050

Analyst: L. MATTINGLY Analysis Date: 04-SEP-92 Test: G604.4.0

Parameter	Result	Det. Limit	Units
CONDUCTIVITY	1200	1.0	umHOS/cm

SPECIFIC CONDUCTANCE SW846-9050

Analyst: L. MATTINGLY Analysis Date: 04-SEP-92 Test: G604.4.1

Parameter	Result	Det. Limit	Units
CONDUCTIVITY	1200	1.0	umHOS/cm

SPECIFIC CONDUCTANCE SW846-9050

Analyst: L. MATTINGLY Analysis Date: 04-SEP-92 Test: G604.4.2

Parameter	Result	Det. Limit	Units
CONDUCTIVITY	1200	1.0	umHOS/cm

SPECIFIC CONDUCTANCE SW846-9050

Analyst: L. MATTINGLY Analysis Date: 04-SEP-92 Test: G604.4.3

Parameter	Result	Det. Limit	Units
CONDUCTIVITY	1200	1.0	umHOS/cm

TOTAL ORGANIC CARBON SW846-9060

Analyst: K. FULLMER Analysis Date: 09-SEP-92 Instrument: TOC Test: 0401.0.0

Parameter	Result	Det. Limit	Units
TOTAL ORGANIC CARBON (TOC)	10	3	mg/L

TOTAL ORGANIC CARBON SW846-9060

Analyst: K. FULLMER Analysis Date: 09-SEP-92 Instrument: TOC Test: 0401.0.1

Parameter	Result	Det. Limit	Units
TOTAL ORGANIC CARBON (TOC)	6.8	3	mg/L

TOTAL ORGANIC CARBON SW846-9060

Analyst: K. FULLMER Analysis Date: 09-SEP-92 Instrument: TOC Test: 0401.0.2

Parameter	Result	Det. Limit	Units
TOTAL ORGANIC CARBON (TOC)	8.1	3	mg/L

TOTAL ORGANIC CARBON SW846-9060

Analyst: K. FULLMER Analysis Date: 09-SEP-92 Instrument: TOC Test: 0401.0.3

Parameter	Result	Det. Limit	Units
TOTAL ORGANIC CARBON (TOC)	6.2	3	mg/L

TOTAL ORGANIC HALIDES SW846-9020

Analyst: K. RILEY Analysis Date: 03-SEP-92 Instrument: TOX Test: 0404.0.0

Parameter	Result	Det. Limit	Units
TOTAL ORGANIC HALOGEN (TOX)	BDL	0.01	mg/L

TOTAL ORGANIC HALIDES SW846-9020

Analyst: K. RILEY Analysis Date: 03-SEP-92 Instrument: TOX Test: 0404.0.1

Parameter	Result	Det. Limit	Units
TOTAL ORGANIC HALOGEN (TOX)	BDL	0.01	mg/L

TOTAL ORGANIC HALIDES SW846-9020

Analyst: K. RILEY Analysis Date: 03-SEP-92 Instrument: TOX Test: 0404.0.2

Parameter	Result	Det. Limit	Units
TOTAL ORGANIC HALOGEN (TOX)	BDL	0.01	mg/L

TOTAL ORGANIC HALIDES SW846-9020

Analyst: K. RILEY Analysis Date: 03-SEP-92 Instrument: TOX Test: 0404.0.3

Parameter	Result	Det. Limit	Units
TOTAL ORGANIC HALOGEN (TOX)	BDL	0.01	mg/L

GFAA ACID DIGESTION (DISSOLVED METALS) AQUEOUS SAMPLES SW846-3020

Analyst: S. CARDWELL Analysis Date: 10-SEP-92 Test: P133.6.0

Parameter	Result	Det. Limit	Units
INITIAL WEIGHT OR VOLUME	50		mL
FINAL VOLUME	50		mL

HERITAGE LABORATORIES, INC. **Lab Sample ID: A260578**

LEAD GFAA SW846-7421

Analyst: W. WATNESS Analysis Date: 11-SEP-92 Instrument: GFAA Test: M116.2.0

Prep: GFAA ACID DIGESTION (DISSOLVED METALS) AQUEOUS SAMPLES SW846-3020 P133.6.0

Parameter	Result	Det. Limit	Units
LEAD	BDL	0.0050	mg/L

GFAA ACID DIGESTION (DISSOLVED METALS) AQUEOUS SAMPLES SW846-3020

Analyst: S. CARDWELL Analysis Date: 10-SEP-92 Test: P133.6.1

Parameter	Result	Det. Limit	Units
INITIAL WEIGHT OR VOLUME	50		mL
FINAL VOLUME	50		mL

LEAD GFAA SW846-7421

Analyst: K. HACK Analysis Date: 16-SEP-92 Instrument: GFAA Test: M116.2.1

Prep: GFAA ACID DIGESTION (DISSOLVED METALS) AQUEOUS SAMPLES SW846-3020 P133.6.1

Parameter	Result	Det. Limit	Units
LEAD	BDL	0.0050	mg/L

GFAA ACID DIGESTION (DISSOLVED METALS) AQUEOUS SAMPLES SW846-3020

Analyst: S. CARDWELL Analysis Date: 10-SEP-92 Test: P133.6.2

Parameter	Result	Det. Limit	Units
INITIAL WEIGHT OR VOLUME	50		mL
FINAL VOLUME	50		mL

LEAD GFAA SW846-7421

Analyst: K. HACK Analysis Date: 16-SEP-92 Instrument: GFAA Test: M116.2.2

Prep: GFAA ACID DIGESTION (DISSOLVED METALS) AQUEOUS SAMPLES SW846-3020 P133.6.2

Parameter	Result	Det. Limit	Units
LEAD	BDL	0.0050	mg/L

GFAA ACID DIGESTION (DISSOLVED METALS) AQUEOUS SAMPLES SW846-3020

Analyst: S. CARDWELL Analysis Date: 10-SEP-92 Test: P133.6.3

Parameter	Result	Det. Limit	Units
INITIAL WEIGHT OR VOLUME	50		mL
FINAL VOLUME	50		mL

LEAD GFAA SW846-7421

Analyst: K. HACK Analysis Date: 16-SEP-92 Instrument: GFAA Test: M116.2.3

Prep: GFAA ACID DIGESTION (DISSOLVED METALS) AQUEOUS SAMPLES SW846-3020 P133.6.3

Parameter	Result	Det. Limit	Units
LEAD	BDL	0.0050	mg/L

Sample Comments

BDL Below Detection Limit

Sample chain of custody number 6716/5152.

IDEM Drinking Water Certification Number C-49-01

Additional copies of this report sent to:
TIM BARTLETT, MITTELHAUSER CORPORATION
1240 IROQUOIS DRIVE SUITE 102, NAPERVILLE, IL 60563

Quality Assurance Officer: _____

CERTIFICATE OF ANALYSIS

Service Location	Received	Project	Lab ID
HERITAGE LABORATORIES, INC. 7901 W. MORRIS ST. INDIANAPOLIS, IN 46231 (317)243-8305	01-SEP-92	538	A260580
	Complete: 16-SEP-92	PO Number: DRD 448612 *	
	Printed: 17-SEP-92	Sampled: 01-SEP-92 11:35	

Report To

TIM RENNER
DELCO REMY
PLANT 1 ROOM 555
2401 COLUMBUS AVENUE
ANDERSON, IN 46018

Bill To

DISBURSEMENT ANALYSIS DEP
AUTOMOTIVE COMPONENTS GROUP
P.O. BOX 436040
PONTIAC, MI 48343-6040

Sample Description

PLANT LOCATION: MUNCIE, IN
SAMPLE ID: W-6
PART OR SPEC NUMBER: GPR-0448612001

PH (AQUEOUS) SW846-9040

Analyst: J. WALLACE — Analysis Date: 02-SEP-92 — Test: G607.5.0

Parameter	Result	Det. Limit	Units
PH	7.6	0.1	Std. Units

PH (AQUEOUS) SW846-9040

Analyst: J. WALLACE — Analysis Date: 02-SEP-92 — Test: G607.5.1

Parameter	Result	Det. Limit	Units
PH	7.5	0.1	Std. Units

PH (AQUEOUS) SW846-9040

Analyst: J. WALLACE — Analysis Date: 02-SEP-92 — Test: G607.5.2

Parameter	Result	Det. Limit	Units
PH	7.6	0.1	Std. Units

PH (AQUEOUS) SW846-9040

Analyst: J. WALLACE — Analysis Date: 02-SEP-92 — Test: G607.5.3

Parameter	Result	Det. Limit	Units
PH	7.5	0.1	Std. Units

SPECIFIC CONDUCTANCE SW846-9050

Analyst: L. MATTINGLY — Analysis Date: 04-SEP-92 — Test: G604.4.0

Parameter	Result	Det. Limit	Units
CONDUCTIVITY	640	1.0	umHOS/cm

SPECIFIC CONDUCTANCE SW846-9050

Analyst: L. MATTINGLY — Analysis Date: 04-SEP-92 — Test: G604.4.1

Parameter	Result	Det. Limit	Units
CONDUCTIVITY	640	1.0	umHOS/cm

SPECIFIC CONDUCTANCE SW846-9050
Analyst: L. MATTINGLY Analysis Date: 04-SEP-92 Test: G604.4.2

Parameter	Result	Det. Limit	Units
CONDUCTIVITY	630	1.0	umHOS/cm

SPECIFIC CONDUCTANCE SW846-9050
Analyst: L. MATTINGLY Analysis Date: 04-SEP-92 Test: G604.4.3

Parameter	Result	Det. Limit	Units
CONDUCTIVITY	640	1.0	umHOS/cm

TOTAL ORGANIC CARBON SW846-9060
Analyst: K. FULLMER Analysis Date: 09-SEP-92 Instrument: TOC Test: 0401.0.0

Parameter	Result	Det. Limit	Units
TOTAL ORGANIC CARBON (TOC)	4.9	3	mg/L

TOTAL ORGANIC CARBON SW846-9060
Analyst: K. FULLMER Analysis Date: 09-SEP-92 Instrument: TOC Test: 0401.0.1

Parameter	Result	Det. Limit	Units
TOTAL ORGANIC CARBON (TOC)	4.2	3	mg/L

TOTAL ORGANIC CARBON SW846-9060
Analyst: K. FULLMER Analysis Date: 09-SEP-92 Instrument: TOC Test: 0401.0.2

Parameter	Result	Det. Limit	Units
TOTAL ORGANIC CARBON (TOC)	5.3	3	mg/L

TOTAL ORGANIC CARBON SW846-9060
Analyst: K. FULLMER Analysis Date: 09-SEP-92 Instrument: TOC Test: 0401.0.3

Parameter	Result	Det. Limit	Units
TOTAL ORGANIC CARBON (TOC)	3.8	3	mg/L

TOTAL ORGANIC HALIDES SW846-9020
Analyst: K. RILEY Analysis Date: 03-SEP-92 Instrument: TOX Test: 0404.0.0

Parameter	Result	Det. Limit	Units
TOTAL ORGANIC HALOGEN (TOX)	BDL	0.01	mg/L

TOTAL ORGANIC HALIDES SW846-9020
Analyst: K. RILEY Analysis Date: 03-SEP-92 Instrument: TOX Test: 0404.0.1

Parameter	Result	Det. Limit	Units
TOTAL ORGANIC HALOGEN (TOX)	BDL	0.01	mg/L

TOTAL ORGANIC HALIDES SW846-9020
Analyst: K. RILEY Analysis Date: 04-SEP-92 Instrument: TOX Test: 0404.0.2

Parameter	Result	Det. Limit	Units
TOTAL ORGANIC HALOGEN (TOX)	BDL	0.01	mg/L

TOTAL ORGANIC HALIDES SW846-9020
Analyst: K. RILEY Analysis Date: 04-SEP-92 Instrument: TOX Test: 0404.0.3

Parameter	Result	Det. Limit	Units
TOTAL ORGANIC HALOGEN (TOX)	BDL	0.01	mg/L

GFAA ACID DIGESTION (DISSOLVED METALS) AQUEOUS SAMPLES SW846-3020
Analyst: S. CARDWELL Analysis Date: 10-SEP-92 Test: P133.6.0

Parameter	Result	Det. Limit	Units
INITIAL WEIGHT OR VOLUME	50		mL
INAL VOLUME	50		mL

HERITAGE LABORATORIES, INC. **Lab Sample ID: A260580**

LEAD GFAA SW846-7421
Analyst: K. HACK Analysis Date: 16-SEP-92 Instrument: GFAA Test: M116.2.0
Prep: GFAA ACID DIGESTION (DISSOLVED METALS) AQUEOUS SAMPLES SW846-3020 P133.6.0

Parameter	Result	Det. Limit	Units
LEAD	BDL	0.0050	mg/L

GFAA ACID DIGESTION (DISSOLVED METALS) AQUEOUS SAMPLES SW846-3020
Analyst: S. CARDWELL Analysis Date: 10-SEP-92 Test: P133.6.1

Parameter	Result	Det. Limit	Units
INITIAL WEIGHT OR VOLUME	50		mL
FINAL VOLUME	50		mL

LEAD GFAA SW846-7421
Analyst: K. HACK Analysis Date: 16-SEP-92 Instrument: GFAA Test: M116.2.1
Prep: GFAA ACID DIGESTION (DISSOLVED METALS) AQUEOUS SAMPLES SW846-3020 P133.6.1

Parameter	Result	Det. Limit	Units
LEAD	BDL	0.0050	mg/L

GFAA ACID DIGESTION (DISSOLVED METALS) AQUEOUS SAMPLES SW846-3020
Analyst: S. CARDWELL Analysis Date: 10-SEP-92 Test: P133.6.2

Parameter	Result	Det. Limit	Units
INITIAL WEIGHT OR VOLUME	50		mL
FINAL VOLUME	50		mL

LEAD GFAA SW846-7421
Analyst: K. HACK Analysis Date: 16-SEP-92 Instrument: GFAA Test: M116.2.2
Prep: GFAA ACID DIGESTION (DISSOLVED METALS) AQUEOUS SAMPLES SW846-3020 P133.6.2

Parameter	Result	Det. Limit	Units
LEAD	BDL	0.0050	mg/L

GFAA ACID DIGESTION (DISSOLVED METALS) AQUEOUS SAMPLES SW846-3020
Analyst: S. CARDWELL Analysis Date: 10-SEP-92 Test: P133.6.3

Parameter	Result	Det. Limit	Units
INITIAL WEIGHT OR VOLUME	50		mL
FINAL VOLUME	50		mL

LEAD GFAA SW846-7421
Analyst: K. HACK Analysis Date: 16-SEP-92 Instrument: GFAA Test: M116.2.3
Prep: GFAA ACID DIGESTION (DISSOLVED METALS) AQUEOUS SAMPLES SW846-3020 P133.6.3

Parameter	Result	Det. Limit	Units
LEAD	BDL	0.0050	mg/L

Sample Comments

BDL Below Detection Limit

Sample chain of custody number 6716/5152.

IDEM Drinking Water Certification Number C-49-01

Additional copies of this report sent to:
TIM BARTLETT, MITTELHAUSER CORPORATION
1240 IROQUOIS DRIVE SUITE 102, NAPERVILLE, IL 60563

Quality Assurance Officer: _____

CERTIFICATE OF ANALYSIS

Service Location	Received	Project	Lab ID
ERITAGE LABORATORIES, INC. 7901 W. MORRIS ST. INDIANAPOLIS, IN 46231 (317)243-8305	01-SEP-92	538	A260582
	Complete: 16-SEP-92	PO Number: DRD 448612 *	
	Printed: 17-SEP-92	Sampled: 01-SEP-92 13:30	

Report To

TIM RENNER
DELCO REMY
PLANT 1 ROOM 555
2401 COLUMBUS AVENUE
ANDERSON, IN 46018

Bill To

DISBURSEMENT ANALYSIS DEP
AUTOMOTIVE COMPONENTS GROUP
P.O. BOX 436040
PONTIAC, MI 48343-6040

Sample Description

PLANT LOCATION: MUNCIE, IN
SAMPLE ID: W-1
PART OR SPEC NUMBER: GPR-0448612001

PH (AQUEOUS) SW846-9040

Analyst: J. WALLACE | Analysis Date: 02-SEP-92 | Test: G607.5.0

Parameter	Result	Det. Limit	Units
PH	7.1	0.1	Std. Units

PH (AQUEOUS) SW846-9040

Analyst: J. WALLACE | Analysis Date: 02-SEP-92 | Test: G607.5.1

Parameter	Result	Det. Limit	Units
rrl	7.0	0.1	Std. Units

PH (AQUEOUS) SW846-9040

Analyst: J. WALLACE | Analysis Date: 02-SEP-92 | Test: G607.5.2

Parameter	Result	Det. Limit	Units
PH	7.0	0.1	Std. Units

PH (AQUEOUS) SW846-9040

Analyst: J. WALLACE | Analysis Date: 02-SEP-92 | Test: G607.5.3

Parameter	Result	Det. Limit	Units
PH	7.1	0.1	Std. Units

SPECIFIC CONDUCTANCE SW846-9050

Analyst: L. MATTINGLY | Analysis Date: 04-SEP-92 | Test: G604.4.0

Parameter	Result	Det. Limit	Units
CONDUCTIVITY	1500	1.0	umHOS/cm

SPECIFIC CONDUCTANCE SW846-9050

Analyst: L. MATTINGLY | Analysis Date: 04-SEP-92 | Test: G604.4.1

Parameter	Result	Det. Limit	Units
CONDUCTIVITY	1500	1.0	umHOS/cm

HERITAGE LABORATORIES, INC.

Lab Sample ID: A260582

SPECIFIC CONDUCTANCE SW846-9050
Analyst: L. MATTINGLY Analysis Date: 04-SEP-92 Test: G604.4.2

Parameter	Result	Det. Limit	Units
CONDUCTIVITY	1500	1.0	umHOS/cm

SPECIFIC CONDUCTANCE SW846-9050
Analyst: L. MATTINGLY Analysis Date: 04-SEP-92 Test: G604.4.3

Parameter	Result	Det. Limit	Units
CONDUCTIVITY	1500	1.0	umHOS/cm

TOTAL ORGANIC CARBON SW846-9060
Analyst: K. FULLMER Analysis Date: 09-SEP-92 Instrument: TOC Test: 0401.0.0

Parameter	Result	Det. Limit	Units
TOTAL ORGANIC CARBON (TOC)	11	3	mg/L

TOTAL ORGANIC CARBON SW846-9060
Analyst: K. FULLMER Analysis Date: 09-SEP-92 Instrument: TOC Test: 0401.0.1

Parameter	Result	Det. Limit	Units
TOTAL ORGANIC CARBON (TOC)	12	3	mg/L

TOTAL ORGANIC CARBON SW846-9060
Analyst: K. FULLMER Analysis Date: 09-SEP-92 Instrument: TOC Test: 0401.0.2

Parameter	Result	Det. Limit	Units
TOTAL ORGANIC CARBON (TOC)	11	3	mg/L

TOTAL ORGANIC CARBON SW846-9060
Analyst: K. FULLMER Analysis Date: 09-SEP-92 Instrument: TOC Test: 0401.0.3

Parameter	Result	Det. Limit	Units
TOTAL ORGANIC CARBON (TOC)	12	3	mg/L

TOTAL ORGANIC HALIDES SW846-9020
Analyst: K. RILEY Analysis Date: 04-SEP-92 Instrument: TOX Test: 0404.0.0

Parameter	Result	Det. Limit	Units
TOTAL ORGANIC HALOGEN (TOX)	BDL	0.01	mg/L

TOTAL ORGANIC HALIDES SW846-9020
Analyst: K. RILEY Analysis Date: 04-SEP-92 Instrument: TOX Test: 0404.0.1

Parameter	Result	Det. Limit	Units
TOTAL ORGANIC HALOGEN (TOX)	BDL	0.01	mg/L

TOTAL ORGANIC HALIDES SW846-9020
Analyst: K. RILEY Analysis Date: 04-SEP-92 Instrument: TOX Test: 0404.0.2

Parameter	Result	Det. Limit	Units
TOTAL ORGANIC HALOGEN (TOX)	BDL	0.01	mg/L

TOTAL ORGANIC HALIDES SW846-9020
Analyst: K. RILEY Analysis Date: 04-SEP-92 Instrument: TOX Test: 0404.0.3

Parameter	Result	Det. Limit	Units
TOTAL ORGANIC HALOGEN (TOX)	BDL	0.01	mg/L

GFAA ACID DIGESTION (DISSOLVED METALS) AQUEOUS SAMPLES SW846-3020
Analyst: S. CARDWELL Analysis Date: 10-SEP-92 Test: P133.6.0

Parameter	Result	Det. Limit	Units
INITIAL WEIGHT OR VOLUME	50		mL
FINAL VOLUME	50		mL

LEAD GFAA SW846-7421

Analyst: K. HACK Analysis Date: 16-SEP-92 Instrument: GFAA Test: M116.2.0

Prep: GFAA ACID DIGESTION (DISSOLVED METALS) AQUEOUS SAMPLES SW846-3020 P133.6.0

Parameter	Result	Det. Limit	Units
LEAD	BDL	0.0050	mg/L

GFAA ACID DIGESTION (DISSOLVED METALS) AQUEOUS SAMPLES SW846-3020

Analyst: S. CARDWELL Analysis Date: 10-SEP-92 Test: P133.6.1

Parameter	Result	Det. Limit	Units
INITIAL WEIGHT OR VOLUME	50		mL
FINAL VOLUME	50		mL

LEAD GFAA SW846-7421

Analyst: K. HACK Analysis Date: 16-SEP-92 Instrument: GFAA Test: M116.2.1

Prep: GFAA ACID DIGESTION (DISSOLVED METALS) AQUEOUS SAMPLES SW846-3020 P133.6.1

Parameter	Result	Det. Limit	Units
LEAD	BDL	0.0050	mg/L

GFAA ACID DIGESTION (DISSOLVED METALS) AQUEOUS SAMPLES SW846-3020

Analyst: S. CARDWELL Analysis Date: 10-SEP-92 Test: P133.6.2

Parameter	Result	Det. Limit	Units
INITIAL WEIGHT OR VOLUME	50		mL
FINAL VOLUME	50		mL

LEAD GFAA SW846-7421

Analyst: K. HACK Analysis Date: 16-SEP-92 Instrument: GFAA Test: M116.2.2

Prep: GFAA ACID DIGESTION (DISSOLVED METALS) AQUEOUS SAMPLES SW846-3020 P133.6.2

Parameter	Result	Det. Limit	Units
LEAD	BDL	0.0050	mg/L

AA ACID DIGESTION (DISSOLVED METALS) AQUEOUS SAMPLES SW846-3020

Analyst: S. CARDWELL Analysis Date: 10-SEP-92 Test: P133.6.3

Parameter	Result	Det. Limit	Units
INITIAL WEIGHT OR VOLUME	50		mL
FINAL VOLUME	50		mL

LEAD GFAA SW846-7421

Analyst: K. HACK Analysis Date: 16-SEP-92 Instrument: GFAA Test: M116.2.3

Prep: GFAA ACID DIGESTION (DISSOLVED METALS) AQUEOUS SAMPLES SW846-3020 P133.6.3

Parameter	Result	Det. Limit	Units
LEAD	BDL	0.0050	mg/L

Sample Comments

BDL Below Detection Limit

Sample chain of custody number 6716/5152.

IDEM Drinking Water Certification Number C-49-01

Additional copies of this report sent to:
TIM BARTLETT, MITTELHAUSER CORPORATION
1240 IROQUOIS DRIVE SUITE 102, NAPERVILLE, IL 60563

Quality Assurance Officer: _____

CERTIFICATE OF ANALYSIS

Service Location	Received	Project	Lab ID
HERITAGE LABORATORIES, INC. 7901 W. MORRIS ST. INDIANAPOLIS, IN 46231 (317)243-8305	01-SEP-92	538	A260584
	Complete 16-SEP-92	PO Number DRD 448612 *	
	Printed 17-SEP-92	Sampled 01-SEP-92 14:25	

Report To

TIM RENNER
DELCO REMY
PLANT 1 ROOM 555
2401 COLUMBUS AVENUE
ANDERSON, IN 46018

Bill To

DISBURSEMENT ANALYSIS DEP
AUTOMOTIVE COMPONENTS GROUP
P.O. BOX 436040
PONTIAC, MI 48343-6040

Sample Description

PLANT LOCATION: MUNCIE, IN
SAMPLE ID: W-5
PART OR SPEC NUMBER: GPR-0448612001

PH (AQUEOUS) SW846-9040

Analyst: J. WALLACE Analysis Date: 02-SEP-92 Test: G607.5.0

Parameter	Result	Det. Limit	Units
PH	6.9	0.1	Std. Units

PH (AQUEOUS) SW846-9040

Analyst: J. WALLACE Analysis Date: 02-SEP-92 Test: G607.5.1

Parameter	Result	Det. Limit	Units
PH	6.9	0.1	Std. Units

PH (AQUEOUS) SW846-9040

Analyst: J. WALLACE Analysis Date: 02-SEP-92 Test: G607.5.2

Parameter	Result	Det. Limit	Units
PH	6.9	0.1	Std. Units

PH (AQUEOUS) SW846-9040

Analyst: J. WALLACE Analysis Date: 02-SEP-92 Test: G607.5.3

Parameter	Result	Det. Limit	Units
PH	7.0	0.1	Std. Units

SPECIFIC CONDUCTANCE SW846-9050

Analyst: L. MATTINGLY Analysis Date: 04-SEP-92 Test: G604.4.0

Parameter	Result	Det. Limit	Units
CONDUCTIVITY	1300	1.0	umHOS/cm

SPECIFIC CONDUCTANCE SW846-9050

Analyst: L. MATTINGLY Analysis Date: 04-SEP-92 Test: G604.4.1

Parameter	Result	Det. Limit	Units
CONDUCTIVITY	1300	1.0	umHOS/cm

SPECIFIC CONDUCTANCE SW846-9050
Analyst: L. MATTINGLY Analysis Date: 04-SEP-92 Test: G604.4.2

Parameter	Result	Det. Limit	Units
CONDUCTIVITY	1300	1.0	umHOS/cm

SPECIFIC CONDUCTANCE SW846-9050
Analyst: L. MATTINGLY Analysis Date: 04-SEP-92 Test: G604.4.3

Parameter	Result	Det. Limit	Units
CONDUCTIVITY	1300	1.0	umHOS/cm

TOTAL ORGANIC CARBON SW846-9060
Analyst: K. FULLMER Analysis Date: 09-SEP-92 Instrument: TOC Test: 0401.0.0

Parameter	Result	Det. Limit	Units
TOTAL ORGANIC CARBON (TOC)	7.9	3	mg/L

TOTAL ORGANIC CARBON SW846-9060
Analyst: K. FULLMER Analysis Date: 09-SEP-92 Instrument: TOC Test: 0401.0.1

Parameter	Result	Det. Limit	Units
TOTAL ORGANIC CARBON (TOC)	6.5	3	mg/L

TOTAL ORGANIC CARBON SW846-9060
Analyst: K. FULLMER Analysis Date: 09-SEP-92 Instrument: TOC Test: 0401.0.2

Parameter	Result	Det. Limit	Units
TOTAL ORGANIC CARBON (TOC)	6.1	3	mg/L

TOTAL ORGANIC CARBON SW846-9060
Analyst: K. FULLMER Analysis Date: 09-SEP-92 Instrument: TOC Test: 0401.0.3

Parameter	Result	Det. Limit	Units
TOTAL ORGANIC CARBON (TOC)	6.9	3	mg/L

TOTAL ORGANIC HALIDES SW846-9020
Analyst: K. RILEY Analysis Date: 04-SEP-92 Instrument: TOX Test: 0404.0.0

Parameter	Result	Det. Limit	Units
TOTAL ORGANIC HALOGEN (TOX)	BDL	0.01	mg/L

TOTAL ORGANIC HALIDES SW846-9020
Analyst: K. RILEY Analysis Date: 04-SEP-92 Instrument: TOX Test: 0404.0.1

Parameter	Result	Det. Limit	Units
TOTAL ORGANIC HALOGEN (TOX)	BDL	0.01	mg/L

TOTAL ORGANIC HALIDES SW846-9020
Analyst: K. RILEY Analysis Date: 05-SEP-92 Instrument: TOX Test: 0404.0.2

Parameter	Result	Det. Limit	Units
TOTAL ORGANIC HALOGEN (TOX)	BDL	0.01	mg/L

TOTAL ORGANIC HALIDES SW846-9020
Analyst: K. RILEY Analysis Date: 05-SEP-92 Instrument: TOX Test: 0404.0.3

Parameter	Result	Det. Limit	Units
TOTAL ORGANIC HALOGEN (TOX)	BDL	0.01	mg/L

GFAA ACID DIGESTION (DISSOLVED METALS) AQUEOUS SAMPLES SW846-3020
Analyst: S. CARDWELL Analysis Date: 10-SEP-92 Test: P133.6.0

Parameter	Result	Det. Limit	Units
INITIAL WEIGHT OR VOLUME	50		mL
NAL VOLUME	50		mL

HERITAGE LABORATORIES, INC. Lab Sample ID: A260584

LEAD GFAA SW846-7421
Analyst: W. WATNESS Analysis Date: 11-SEP-92 Instrument: GFAA Test: M116.2.0
Prep: GFAA ACID DIGESTION (DISSOLVED METALS) AQUEOUS SAMPLES SW846-3020 P133.6.0

Parameter	Result	Det. Limit	Units
LEAD	BDL	0.0050	mg/L

GFAA ACID DIGESTION (DISSOLVED METALS) AQUEOUS SAMPLES SW846-3020
Analyst: S. CARDWELL Analysis Date: 10-SEP-92 Test: P133.6.1

Parameter	Result	Det. Limit	Units
INITIAL WEIGHT OR VOLUME	50		mL
FINAL VOLUME	50		mL

LEAD GFAA SW846-7421
Analyst: K. HACK Analysis Date: 16-SEP-92 Instrument: GFAA Test: M116.2.1
Prep: GFAA ACID DIGESTION (DISSOLVED METALS) AQUEOUS SAMPLES SW846-3020 P133.6.1

Parameter	Result	Det. Limit	Units
LEAD	BDL	0.0050	mg/L

GFAA ACID DIGESTION (DISSOLVED METALS) AQUEOUS SAMPLES SW846-3020
Analyst: S. CARDWELL Analysis Date: 10-SEP-92 Test: P133.6.2

Parameter	Result	Det. Limit	Units
INITIAL WEIGHT OR VOLUME	50		mL
FINAL VOLUME	50		mL

LEAD GFAA SW846-7421
Analyst: K. HACK Analysis Date: 16-SEP-92 Instrument: GFAA Test: M116.2.2
Prep: GFAA ACID DIGESTION (DISSOLVED METALS) AQUEOUS SAMPLES SW846-3020 P133.6.2

Parameter	Result	Det. Limit	Units
LEAD	BDL	0.0050	mg/L

GFAA ACID DIGESTION (DISSOLVED METALS) AQUEOUS SAMPLES SW846-3020
Analyst: S. CARDWELL Analysis Date: 10-SEP-92 Test: P133.6.3

Parameter	Result	Det. Limit	Units
INITIAL WEIGHT OR VOLUME	50		mL
FINAL VOLUME	50		mL

LEAD GFAA SW846-7421
Analyst: K. HACK Analysis Date: 16-SEP-92 Instrument: GFAA Test: M116.2.3
Prep: GFAA ACID DIGESTION (DISSOLVED METALS) AQUEOUS SAMPLES SW846-3020 P133.6.3

Parameter	Result	Det. Limit	Units
LEAD	BDL	0.0050	mg/L

Sample Comments

BDL Below Detection Limit

Sample chain of custody number 6716/5152.

IDEM Drinking Water Certification Number C-49-01

Additional copies of this report sent to:
TIM BARTLETT, MITTELHAUSER CORPORATION
1240 IROQUOIS DRIVE SUITE 102, NAPERVILLE, IL 60563

Quality Assurance Officer: _____

CERTIFICATE OF ANALYSIS

Service Location	Received	Project	Lab ID
HERITAGE LABORATORIES, INC. /901 W. MORRIS ST. INDIANAPOLIS, IN 46231 (317)243-8305	01-SEP-92	538	A260586
	Complete	PO Number	
	16-SEP-92	DRD 448612 *	
	Printed	Sampled	
	17-SEP-92	01-SEP-92 16:10	

Report To

TIM RENNER
DELCO REMY
PLANT 1 ROOM 555
2401 COLUMBUS AVENUE
ANDERSON, IN 46018

Bill To

DISBURSEMENT ANALYSIS DEP
AUTOMOTIVE COMPONENTS GROUP
P.O. BOX 436040
PONTIAC, MI 48343-6040

Sample Description

PLANT LOCATION: MUNCIE, IN
SAMPLE ID: W-7
PART OR SPEC NUMBER: GPR-0448612001

PH (AQUEOUS) SW846-9040

Analyst: J. WALLACE Analysis Date: 02-SEP-92 Test: G607.5.0

Parameter	Result	Det. Limit	Units
PH	6.7	0.1	Std. Units

PH (AQUEOUS) SW846-9040

Analyst: J. WALLACE Analysis Date: 02-SEP-92 Test: G607.5.1

Parameter	Result	Det. Limit	Units
.H	6.6	0.1	Std. Units

PH (AQUEOUS) SW846-9040

Analyst: J. WALLACE Analysis Date: 02-SEP-92 Test: G607.5.2

Parameter	Result	Det. Limit	Units
PH	6.7	0.1	Std. Units

PH (AQUEOUS) SW846-9040

Analyst: J. WALLACE Analysis Date: 02-SEP-92 Test: G607.5.3

Parameter	Result	Det. Limit	Units
PH	6.7	0.1	Std. Units

SPECIFIC CONDUCTANCE SW846-9050

Analyst: L. MATTINGLY Analysis Date: 04-SEP-92 Test: G604.4.0

Parameter	Result	Det. Limit	Units
CONDUCTIVITY	1400	1.0	umHOS/cm

SPECIFIC CONDUCTANCE SW846-9050

Analyst: L. MATTINGLY Analysis Date: 04-SEP-92 Test: G604.4.1

Parameter	Result	Det. Limit	Units
CONDUCTIVITY	1400	1.0	umHOS/cm

SPECIFIC CONDUCTANCE SW846-9050

Analyst: L. MATTINGLY Analysis Date: 06-SEP-92 Test: G604.4.2

Parameter	Result	Det. Limit	Units
CONDUCTIVITY	1400	1.0	umHOS/cm

SPECIFIC CONDUCTANCE SW846-9050

Analyst: L. MATTINGLY Analysis Date: 04-SEP-92 Test: G604.4.3

Parameter	Result	Det. Limit	Units
CONDUCTIVITY	1400	1.0	umHOS/cm

TOTAL ORGANIC CARBON SW846-9060

Analyst: K. FULLMER Analysis Date: 09-SEP-92 Instrument: TOC Test: 0401.0.0

Parameter	Result	Det. Limit	Units
TOTAL ORGANIC CARBON (TOC)	7.4	3	mg/L

TOTAL ORGANIC CARBON SW846-9060

Analyst: K. FULLMER Analysis Date: 09-SEP-92 Instrument: TOC Test: 0401.0.1

Parameter	Result	Det. Limit	Units
TOTAL ORGANIC CARBON (TOC)	7.4	3	mg/L

TOTAL ORGANIC CARBON SW846-9060

Analyst: K. FULLMER Analysis Date: 09-SEP-92 Instrument: TOC Test: 0401.0.2

Parameter	Result	Det. Limit	Units
TOTAL ORGANIC CARBON (TOC)	9.2	3	mg/L

TOTAL ORGANIC CARBON SW846-9060

Analyst: K. FULLMER Analysis Date: 09-SEP-92 Instrument: TOC Test: 0401.0.3

Parameter	Result	Det. Limit	Units
TOTAL ORGANIC CARBON (TOC)	8.1	3	mg/L

TOTAL ORGANIC HALIDES SW846-9020

Analyst: K. RILEY Analysis Date: 05-SEP-92 Instrument: TOX Test: 0404.0.0

Parameter	Result	Det. Limit	Units
TOTAL ORGANIC HALOGEN (TOX)	BDL	0.01	mg/L

TOTAL ORGANIC HALIDES SW846-9020

Analyst: K. RILEY Analysis Date: 05-SEP-92 Instrument: TOX Test: 0404.0.1

Parameter	Result	Det. Limit	Units
TOTAL ORGANIC HALOGEN (TOX)	BDL	0.01	mg/L

TOTAL ORGANIC HALIDES SW846-9020

Analyst: K. RILEY Analysis Date: 05-SEP-92 Instrument: TOX Test: 0404.0.2

Parameter	Result	Det. Limit	Units
TOTAL ORGANIC HALOGEN (TOX)	0.02	0.01	mg/L

TOTAL ORGANIC HALIDES SW846-9020

Analyst: K. RILEY Analysis Date: 05-SEP-92 Instrument: TOX Test: 0404.0.3

Parameter	Result	Det. Limit	Units
TOTAL ORGANIC HALOGEN (TOX)	BDL	0.01	mg/L

GFAA ACID DIGESTION (DISSOLVED METALS) AQUEOUS SAMPLES SW846-3020

Analyst: S. CARDWELL Analysis Date: 10-SEP-92 Test: P133.6.0

Parameter	Result	Det. Limit	Units
INITIAL WEIGHT OR VOLUME	50		mL
FINAL VOLUME	50		mL

HERITAGE LABORATORIES, INC. **Lab Sample ID: A260586**

LEAD GFAA SW846-7421
Analyst: K. HACK Analysis Date: 16-SEP-92 Instrument: GFAA Test: M116.2.0
Prep: GFAA ACID DIGESTION (DISSOLVED METALS) AQUEOUS SAMPLES SW846-3020 P133.6.0

Parameter	Result	Det. Limit	Units
LEAD	BDL	0.0050	mg/L

GFAA ACID DIGESTION (DISSOLVED METALS) AQUEOUS SAMPLES SW846-3020
Analyst: S. CARDWELL Analysis Date: 10-SEP-92 Test: P133.6.1

Parameter	Result	Det. Limit	Units
INITIAL WEIGHT OR VOLUME	50		mL
FINAL VOLUME	50		mL

LEAD GFAA SW846-7421
Analyst: K. HACK Analysis Date: 16-SEP-92 Instrument: GFAA Test: M116.2.1
Prep: GFAA ACID DIGESTION (DISSOLVED METALS) AQUEOUS SAMPLES SW846-3020 P133.6.1

Parameter	Result	Det. Limit	Units
LEAD	BDL	0.0050	mg/L

GFAA ACID DIGESTION (DISSOLVED METALS) AQUEOUS SAMPLES SW846-3020
Analyst: S. CARDWELL Analysis Date: 10-SEP-92 Test: P133.6.2

Parameter	Result	Det. Limit	Units
INITIAL WEIGHT OR VOLUME	50		mL
FINAL VOLUME	50		mL

LEAD GFAA SW846-7421
Analyst: K. HACK Analysis Date: 16-SEP-92 Instrument: GFAA Test: M116.2.2
Prep: GFAA ACID DIGESTION (DISSOLVED METALS) AQUEOUS SAMPLES SW846-3020 P133.6.2

Parameter	Result	Det. Limit	Units
LEAD	BDL	0.0050	mg/L

AA ACID DIGESTION (DISSOLVED METALS) AQUEOUS SAMPLES SW846-3020
Analyst: S. CARDWELL Analysis Date: 10-SEP-92 Test: P133.6.3

Parameter	Result	Det. Limit	Units
INITIAL WEIGHT OR VOLUME	50		mL
FINAL VOLUME	50		mL

LEAD GFAA SW846-7421
Analyst: K. HACK Analysis Date: 16-SEP-92 Instrument: GFAA Test: M116.2.3
Prep: GFAA ACID DIGESTION (DISSOLVED METALS) AQUEOUS SAMPLES SW846-3020 P133.6.3

Parameter	Result	Det. Limit	Units
LEAD	BDL	0.0050	mg/L

Sample Comments

BDL Below Detection Limit

Sample chain of custody number 6716/5152.

IDEM Drinking Water Certification Number C-49-01

Additional copies of this report sent to:
TIM BARTLETT, MITTELHAUSER CORPORATION
1240 IROQUOIS DRIVE SUITE 102, NAPERVILLE, IL 60563

Quality Assurance Officer: _____

CERTIFICATE OF ANALYSIS

Service Location	Received	Project	Lab ID
HERITAGE LABORATORIES, INC. 7901 W. MORRIS ST. INDIANAPOLIS, IN 46231 (317)243-8305	01-SEP-92	538	A260590
	Complete: 16-SEP-92	PO Number: DRD 448612 *	
	Printed: 17-SEP-92	Sampled: 01-SEP-92 17:40	

Report To

TIM RENNER
DELCO REMY
PLANT 1 ROOM 555
2401 COLUMBUS AVENUE
ANDERSON, IN 46018

Bill To

DISBURSEMENT ANALYSIS DEP
AUTOMOTIVE COMPONENTS GROUP
P.O. BOX 436040
PONTIAC, MI 48343-6040

Sample Description

PLANT LOCATION: MUNCIE, IN
SAMPLE ID: W-3
PART OR SPEC NUMBER: GPR-0448612001

PH (AQUEOUS) SW846-9040

Analyst: J. WALLACE | Analysis Date: 02-SEP-92 | Test: G607.5.0

Parameter	Result	Det. Limit	Units
PH	6.7	0.1	Std. Units

PH (AQUEOUS) SW846-9040

Analyst: J. WALLACE | Analysis Date: 02-SEP-92 | Test: G607.5.1

Parameter	Result	Det. Limit	Units
PH	6.8	0.1	Std. Units

PH (AQUEOUS) SW846-9040

Analyst: J. WALLACE | Analysis Date: 02-SEP-92 | Test: G607.5.2

Parameter	Result	Det. Limit	Units
PH	6.7	0.1	Std. Units

PH (AQUEOUS) SW846-9040

Analyst: J. WALLACE | Analysis Date: 02-SEP-92 | Test: G607.5.3

Parameter	Result	Det. Limit	Units
PH	6.7	0.1	Std. Units

SPECIFIC CONDUCTANCE SW846-9050

Analyst: L. MATTINGLY | Analysis Date: 04-SEP-92 | Test: G604.4.0

Parameter	Result	Det. Limit	Units
CONDUCTIVITY	1300	1.0	umHOS/cm

SPECIFIC CONDUCTANCE SW846-9050

Analyst: L. MATTINGLY | Analysis Date: 04-SEP-92 | Test: G604.4.1

Parameter	Result	Det. Limit	Units
CONDUCTIVITY	1300	1.0	umHOS/cm

SPECIFIC CONDUCTANCE SW846-9050
Analyst: L. MATTINGLY Analysis Date: 04-SEP-92 Test: G604.4.2

Parameter	Result	Det. Limit	Units
CONDUCTIVITY	1300	1.0	umHOS/cm

SPECIFIC CONDUCTANCE SW846-9050
Analyst: L. MATTINGLY Analysis Date: 04-SEP-92 Test: G604.4.3

Parameter	Result	Det. Limit	Units
CONDUCTIVITY	1300	1.0	umHOS/cm

TOTAL ORGANIC CARBON SW846-9060
Analyst: K. FULLMER Analysis Date: 09-SEP-92 Instrument: TOC Test: 0401.0.0

Parameter	Result	Det. Limit	Units
TOTAL ORGANIC CARBON (TOC)	6.0	3	mg/L

TOTAL ORGANIC CARBON SW846-9060
Analyst: K. FULLMER Analysis Date: 09-SEP-92 Instrument: TOC Test: 0401.0.1

Parameter	Result	Det. Limit	Units
TOTAL ORGANIC CARBON (TOC)	6.6	3	mg/L

TOTAL ORGANIC CARBON SW846-9060
Analyst: K. FULLMER Analysis Date: 09-SEP-92 Instrument: TOC Test: 0401.0.2

Parameter	Result	Det. Limit	Units
TOTAL ORGANIC CARBON (TOC)	4.7	3	mg/L

TOTAL ORGANIC CARBON SW846-9060
Analyst: K. FULLMER Analysis Date: 09-SEP-92 Instrument: TOC Test: 0401.0.3

Parameter	Result	Det. Limit	Units
TOTAL ORGANIC CARBON (TOC)	5.4	3	mg/L

TOTAL ORGANIC HALIDES SW846-9020
Analyst: K. RILEY Analysis Date: 05-SEP-92 Instrument: TOX Test: 0404.0.0

Parameter	Result	Det. Limit	Units
TOTAL ORGANIC HALOGEN (TOX)	BDL	0.01	mg/L

TOTAL ORGANIC HALIDES SW846-9020
Analyst: K. RILEY Analysis Date: 05-SEP-92 Instrument: TOX Test: 0404.0.1

Parameter	Result	Det. Limit	Units
TOTAL ORGANIC HALOGEN (TOX)	BDL	0.01	mg/L

TOTAL ORGANIC HALIDES SW846-9020
Analyst: K. RILEY Analysis Date: 05-SEP-92 Instrument: TOX Test: 0404.0.2

Parameter	Result	Det. Limit	Units
TOTAL ORGANIC HALOGEN (TOX)	BDL	0.01	mg/L

TOTAL ORGANIC HALIDES SW846-9020
Analyst: K. RILEY Analysis Date: 05-SEP-92 Instrument: TOX Test: 0404.0.3

Parameter	Result	Det. Limit	Units
TOTAL ORGANIC HALOGEN (TOX)	0.02	0.01	mg/L

GFAA ACID DIGESTION (DISSOLVED METALS) AQUEOUS SAMPLES SW846-3020
Analyst: S. CARDWELL Analysis Date: 14-SEP-92 Test: P133.6.0

Parameter	Result	Det. Limit	Units
INITIAL WEIGHT OR VOLUME	50		mL
FI VOLUME	50		mL

HERITAGE LABORATORIES, INC. Lab Sample ID: A260590

LEAD GFAA SW846-7421
Analyst: K. HACK Analysis Date: 16-SEP-92 Instrument: GFAA Test: M116.2.0
Prep: GFAA ACID DIGESTION (DISSOLVED METALS) AQUEOUS SAMPLES SW846-3020 P133.6.0

Parameter	Result	Det. Limit	Units
LEAD	BDL	0.0050	mg/L

GFAA ACID DIGESTION (DISSOLVED METALS) AQUEOUS SAMPLES SW846-3020
Analyst: S. CARDWELL Analysis Date: 14-SEP-92 Test: P133.6.1

Parameter	Result	Det. Limit	Units
INITIAL WEIGHT OR VOLUME	50		mL
FINAL VOLUME	50		mL

LEAD GFAA SW846-7421
Analyst: K. HACK Analysis Date: 16-SEP-92 Instrument: GFAA Test: M116.2.1
Prep: GFAA ACID DIGESTION (DISSOLVED METALS) AQUEOUS SAMPLES SW846-3020 P133.6.1

Parameter	Result	Det. Limit	Units
LEAD	BDL	0.0050	mg/L

GFAA ACID DIGESTION (DISSOLVED METALS) AQUEOUS SAMPLES SW846-3020
Analyst: S. CARDWELL Analysis Date: 14-SEP-92 Test: P133.6.2

Parameter	Result	Det. Limit	Units
INITIAL WEIGHT OR VOLUME	50		mL
FINAL VOLUME	50		mL

LEAD GFAA SW846-7421
Analyst: K. HACK Analysis Date: 16-SEP-92 Instrument: GFAA Test: M116.2.2
Prep: GFAA ACID DIGESTION (DISSOLVED METALS) AQUEOUS SAMPLES SW846-3020 P133.6.2

Parameter	Result	Det. Limit	Units
LEAD	BDL	0.0050	mg/L

GFAA ACID DIGESTION (DISSOLVED METALS) AQUEOUS SAMPLES SW846-3020
Analyst: S. CARDWELL Analysis Date: 14-SEP-92 Test: P133.6.3

Parameter	Result	Det. Limit	Units
INITIAL WEIGHT OR VOLUME	50		mL
FINAL VOLUME	50		mL

LEAD GFAA SW846-7421
Analyst: K. HACK Analysis Date: 16-SEP-92 Instrument: GFAA Test: M116.2.3
Prep: GFAA ACID DIGESTION (DISSOLVED METALS) AQUEOUS SAMPLES SW846-3020 P133.6.3

Parameter	Result	Det. Limit	Units
LEAD	BDL	0.0050	mg/L

Sample Comments

BDL Below Detection Limit

Sample chain of custody number 6716/5152.

IDEM Drinking Water Certification Number C-49-01

Additional copies of this report sent to:
TIM BARTLETT, MITTELHAUSER CORPORATION
1240 IROQUOIS DRIVE SUITE 102, NAPERVILLE, IL 60563

Quality Assurance Officer: _____

CERTIFICATE OF ANALYSIS

Service Location	Received	Project	Lab ID
HERITAGE LABORATORIES, INC. 7901 W. MORRIS ST. INDIANAPOLIS, IN 46231 (317)243-8305	01-SEP-92	538	A260592
	Complete: 16-SEP-92	PO Number: DRD 448612 *	
	Printed: 17-SEP-92	Sampled: 01-SEP-92 06:20	

Report To

TIM RENNER
DELCO REMY
PLANT 1 ROOM 555
2401 COLUMBUS AVENUE
ANDERSON, IN 46018

Bill To

DISBURSEMENT ANALYSIS DEP
AUTOMOTIVE COMPONENTS GROUP
P.O. BOX 436040
PONTIAC, MI 48343-6040

Sample Description

PLANT LOCATION: MUNCIE, IN
SAMPLE ID: EQUIPMENT BLANK
PART OR SPEC NUMBER: GPR-0448612001

PH (AQUEOUS) SW846-9040

Analyst: J. WALLACE Analysis Date: 02-SEP-92 Test: G607.5.0

Parameter	Result	Det. Limit	Units
PH	6.6	0.1	Std. Units

SPECIFIC CONDUCTANCE SW846-9050

Analyst: L. MATTINGLY Analysis Date: 04-SEP-92 Test: G604.4.0

Parameter	Result	Det. Limit	Units
CONDUCTIVITY	1.4	1.0	umHOS/cm

TOTAL ORGANIC CARBON SW846-9060

Analyst: K. FULLMER Analysis Date: 09-SEP-92 Instrument: TOC Test: G601.0.0

Parameter	Result	Det. Limit	Units
TOTAL ORGANIC CARBON (TOC)	4.7	3	mg/L

TOTAL ORGANIC HALIDES SW846-9020

Analyst: K. RILEY Analysis Date: 03-SEP-92 Instrument: TOX Test: G404.0.0

Parameter	Result	Det. Limit	Units
TOTAL ORGANIC HALOGEN (TOX)	BDL	0.01	mg/L

GFAA ACID DIGESTION (DISSOLVED METALS) AQUEOUS SAMPLES SW846-3020

Analyst: S. CARDWELL Analysis Date: 14-SEP-92 Test: P133.6.0

Parameter	Result	Det. Limit	Units
INITIAL WEIGHT OR VOLUME	50		mL
FINAL VOLUME	50		mL

LEAD GFAA SW846-7421

Analyst: K. HACK Analysis Date: 16-SEP-92 Instrument: GFAA Test: M116.2.0

Prep: GFAA ACID DIGESTION (DISSOLVED METALS) AQUEOUS SAMPLES SW846-3020 P133.6.0

Parameter	Result	Det. Limit	Units
LEAD	BDL	0.0050	mg/L

Sample Comments

BDL Below Detection Limit

Sample chain of custody number 6716/5152.

IDEM Drinking Water Certification Number C-49-01

Additional copies of this report sent to:
TIM BARTLETT, MITTELHAUSER CORPORATION
1240 IROQUOIS DRIVE SUITE 102, NAPERVILLE, IL 60563

Quality Assurance Officer: _____

CERTIFICATE OF ANALYSIS

Service Location	Received	Project	Lab ID
ERITAGE LABORATORIES, INC. ,901 W. MORRIS ST. INDIANAPOLIS, IN 46231 (317)243-8305	01-SEP-92	538	A260594
	Complete: 16-SEP-92	PO Number: DRD 448612 *	
	Printed: 17-SEP-92	Sampled: 01-SEP-92 06:30	

Report To

TIM RENNER
DELCO REMY
PLANT 1 ROOM 555
2401 COLUMBUS AVENUE
ANDERSON, IN 46018

Bill To

DISBURSEMENT ANALYSIS DEP
AUTOMOTIVE COMPONENTS GROUP
P.O. BOX 436040
PONTIAC, MI 48343-6040

Sample Description

PLANT LOCATION: MUNCIE, IN
SAMPLE ID: FIELD BLANK
PART OR SPEC NUMBER: GPR-0448612001

PH (AQUEOUS) SW846-9040

Analyst: J. WALLACE Analysis Date: 02-SEP-92 Test: G607.5.0

Parameter	Result	Det. Limit	Units
PH	5.5	0.1	Std. Units

SPECIFIC CONDUCTANCE SW846-9050

Analyst: L. MATTINGLY Analysis Date: 04-SEP-92 Test: G604.4.0

Parameter	Result	Det. Limit	Units
CONDUCTIVITY	2.4	1.0	umHOS/cm

TOTAL ORGANIC CARBON SW846-9060

Analyst: K. FULLMER Analysis Date: 09-SEP-92 Instrument: TOC Test: O401.0.0

Parameter	Result	Det. Limit	Units
TOTAL ORGANIC CARBON (TOC)	4.2	3	mg/L

TOTAL ORGANIC HALIDES SW846-9020

Analyst: K. RILEY Analysis Date: 03-SEP-92 Instrument: TOX Test: O404.0.0

Parameter	Result	Det. Limit	Units
TOTAL ORGANIC HALOGEN (TOX)	BDL	0.01	mg/L

GFAA ACID DIGESTION (DISSOLVED METALS) AQUEOUS SAMPLES SW846-3020

Analyst: S. CARDWELL Analysis Date: 14-SEP-92 Test: P133.6.0

Parameter	Result	Det. Limit	Units
INITIAL WEIGHT OR VOLUME	50		mL
FINAL VOLUME	50		mL

LEAD GFAA SW846-7421

Analyst: K. HACK Analysis Date: 16-SEP-92 Instrument: GFAA Test: M116.2.0

Prep: GFAA ACID DIGESTION (DISSOLVED METALS) AQUEOUS SAMPLES SW846-3020 P133.6.0

Parameter	Result	Det. Limit	Units
LEAD	BDL	0.0050	mg/L

Sample Comments

BDL Below Detection Limit

Sample chain of custody number 6716/5152.

IDEM Drinking Water Certification Number C-49-01

Additional copies of this report sent to:
TIM BARTLETT, MITTELHAUSER CORPORATION
1240 IROQUOIS DRIVE SUITE 102, NAPERVILLE, IL 60563

ality Assurance Officer: _____

CERTIFICATE OF ANALYSIS

Service Location	Received	Project	Lab ID
HERITAGE LABORATORIES, INC. 7901 W. MORRIS ST. INDIANAPOLIS, IN 46231 (317)243-8305	01-SEP-92	538	A260588
	Complete: 18-SEP-92	PO Number: DRD 448612 *	
	Printed: 19-SEP-92	Sampled: 01-SEP-92 16:10	

Report To	Bill To
TIM RENNER DELCO REMY PLANT 1 ROOM 555 2401 COLUMBUS AVENUE ANDERSON, IN 46018	DISBURSEMENT ANALYSIS DEP AUTOMOTIVE COMPONENTS GROUP P.O. BOX 436040 PONTIAC, MI 48343-6040

Sample Description

PLANT LOCATION: MUNCIE, IN
SAMPLE ID: W-7 DUP
PART OR SPEC NUMBER: GPR-0448612001

PH (AQUEOUS) SW846-9040

Analyst: J. WALLACE Analysis Date: 02-SEP-92 Test: G607.5.0

Parameter	Result	Det. Limit	Units
PH	6.7	0.1	Std. Units

SPECIFIC CONDUCTANCE SW846-9050

Analyst: L. MATTINGLY Analysis Date: 04-SEP-92 Test: G604.4.0

Parameter	Result	Det. Limit	Units
CONDUCTIVITY	1400	1.0	umHOS/cm

TOTAL ORGANIC CARBON SW846-9060

Analyst: K. FULLMER Analysis Date: 09-SEP-92 Instrument: TOC Test: O401.0.0

Parameter	Result	Det. Limit	Units
TOTAL ORGANIC CARBON (TOC)	8.2	3	mg/L

TOTAL ORGANIC HALIDES SW846-9020

Analyst: K. RILEY Analysis Date: 05-SEP-92 Instrument: TOX Test: O404.0.0

Parameter	Result	Det. Limit	Units
TOTAL ORGANIC HALOGEN (TOX)	BDL	0.01	mg/L

NOTE: SAMPLE EXHIBITED HIGH SPIKE RECOVERY. INSUFFICIENT SAMPLE VOLUME TO REPEAT SPIKE ANALYSIS. SAMPLE AND DUPLICATE ANALYSIS WERE BDL.

GFAA ACID DIGESTION (DISSOLVED METALS) AQUEOUS SAMPLES SW846-3020

Analyst: S. CARDWELL Analysis Date: 14-SEP-92 Test: P133.6.0

Parameter	Result	Det. Limit	Units
INITIAL WEIGHT OR VOLUME	50		mL
FINAL VOLUME	50		mL

LEAD GFAA SW846-7421

Analyst: K. HACK Analysis Date: 16-SEP-92 Instrument: GFAA Test: M116.2.0

Prep: GFAA ACID DIGESTION (DISSOLVED METALS) AQUEOUS SAMPLES SW846-3020 P133.6.0

Parameter	Result	Det. Limit	Units
LEAD	BDL	0.0050	mg/L

Sample Comments

BDL Below Detection Limit

Sample chain of custody number 6716/5152.

IDEM Drinking Water Certification Number C-49-01

Additional copies of this report sent to:
TIM BARTLETT, MITTELHAUSER CORPORATION
1240 IROQUOIS DRIVE SUITE 102, NAPERVILLE, IL 60563

Quality Assurance Officer: _____

B. Permit Application
/Post Permit

A.T. Kearney, Inc.
One Lagoon Drive
Redwood City, California 94065
415 595 4300

Management
Consultants

IND 980 503 940

ATKEARNEY

August 9, 1989

Mr. Bernie Orenstein
Solid Waste Branch
Waste Management Division
U.S. EPA Region V (5HR)
230 South Dearborn Street
Chicago, IL 60604

Reference: EPA Contract No. 68-W9-0040; Work Assignment No. R05-02-02; GMC Delco-Remy; Anderson, Indiana; EPA I.D. No. ~~IND980503925;~~ Task 03 Final Deliverable, Draft Permit

Dear Mr. Orenstein:

We have completed a draft permit for the above-referenced facility. Attached you will find the draft permit which follows the State of Indiana format.

The draft permit covers the information submitted in the permit application dated July 1986 (Notice of Deficiency Response (Part I) and Part B Permit Application (Part II)), and any subsequent amendments (dated as received March 13, 1989 and April 3, 1989 and Permittee's letter dated June 16, 1989). The Attachments to the draft permit have been derived from the application and subsequent amendments. The amendments are made at the end of each attachment.

Additional information was reviewed since our deliverable of July 19, 1989 for inclusion in the draft permit. This information included a topographic map in the facility description, process information for the container storage area and additional closure information.

Compliance schedules are included in Sections II.Q. (General Facility Conditions) and III.K. (Container Storage Conditions) to submit additional information within 60 days of the effective date of the permit. These compliance schedules reflect deficiencies still remaining with in the Part B application.

Please feel free to call me or Anita Dale, the Work Assignment Manager (who can be reached at 415/595-4300) if you have any questions.

Sincerely,

Monica B. Roll

Monica B. Roll
Technical Director

Enclosure

cc: J. Kleiman, EPA Region V
L. Bobo, IDEM
A. Glazer
J. Grieve
A. Anderson w/o attachment
L. Sherman w/o attachment
A. Dale
S. Palmer
T. Bingman, B/TSA

0278d

A.T. Kearney, Inc.
One Lagoon Drive
Redwood City, California 94065
415 595 4300

Management
Consultants

IND 980 503 940

ATKEARNEY

July 19, 1989

Mr. Bernie Orenstein
Solid Waste Branch
Waste Management Division
U.S. EPA Region V (5HR)
230 South Dearborn Street
Chicago, IL 60604

Reference: EPA Contract No. 68-W9-0040; Work Assignment No. R05-02-02; GMC Delco-Remy; Anderson, Indiana; EPA I.D. No. ~~IND980503925~~; Task 02 Deliverable, Review of Facility Reponse to NOD

Dear Mr. Orenstein:

We have completed our review of the NOD response for the above-referenced facility. Attached you will find a summary of remaining deficiencies.

The Kearney Team feels that these remaining deficiencies can be addressed by adding terms to the permit with a minimal use of compliance schedules.

In the revised application, the facility noted that several pieces of information would be submitted at a later date (by May 15, 1989). This information includes a topographical map in the facility description, process information for the container storage area and additional closure information. Ms. Linda Bobo, IDEM, has located the missing information, and it is being sent to A.T. Kearney. It will be reviewed and included in the draft permit.

Please feel free to call me or Anita Dale, the Work Assignment Manager (who can be reached at 415/595-4300) if you have any questions.

Sincerely,

Monica B. Roll
Technical Director

cc: J. Kleiman, EPA Region V
L. Bobo, IDEM
A. Glazer
J. Grieve
A. Anderson w/o attachment
L. Sherman w/o attachment
A. Dale
S. Palmer
T. Bingman, B/TSA

0347p

GMC DELCO - REMY
ANDERSON, INDIANA

Notice of Deficiency

Comment	Description of Deficiency

A. PART A APPLICATION: 329 IAC 3-34-4

The revised Part A application indicates that 17.47 tons of F001 wastes are generated per year. The total quantity of F001 wastes generated per year from the revised Table 1, p. C-4, is 11.36 tons. A phone call to the facility may be necessary to resolve the discrepancy between the Part A and Table 1.

B. FACILITY DESCRIPTION

B-2 Topographic Map

B-2a General Requirements: 3-34-5(b)(18)

The applicant indicated that a revised topographic map would be submitted by May 15, 1989. This map was not provided for this review. The map should show contours of five foot intervals if relief is greater than 20 feet, or two foot intervals if relief is less than 20 feet. Contours of the previously submitted map are not clear, or of sufficient intervals. The map should show the location of all gates and fences around buildings on the property, loading/unloading areas for the hazardous waste storage building, and any injection or withdrawal wells located off-site. If the map provided is not adequate it can be requested in a compliance schedule.

B-4 Traffic Information: 3-34-5 (b)(10)

The applicant has not provided a diagram indicating the traffic patterns used by the hazardous waste hauling equipment (e.g., semi truck and fork truck) at the site. The applicant has not included the volume of traffic at the site other than traffic from the Hazardous Waste Storage Building. This can be requested in a compliance schedule.

C. WASTE CHARACTERISTICS

C-1 Chemical and Physical Analyses: 3-34-5(b)(2), 3-41-4(a)

On Table 2, p. C-5 (revised 3/13/89), methyl ethyl ketone (F005) is described as a characteristic waste, paint waste (D001) is described as a listed waste, and varnish sludge (F002) is described as a characteristic waste. However, F005 and F002 are listed wastes, and D001 is a characteristic waste. This can be changed for the draft permit.

0003b

The applicant has not provided detailed descriptions of the hazardous wastes generated at the facility. The applicant indicated that laboratory reports have not been provided for sulfuric acid, phosphoric acid, hydrobromic acid, chromic acid, nitric acid, agetine, mercury, freon and xylene, but that the wastes have been sampled and are currently being analyzed. However, laboratory reports are also missing for muriatic acid. This can be requested in a compliance schedule.

The applicant has provided a laboratory report for "chromic acid sludge". It could not be determined whether this waste differs from the "chromic acid" previously mentioned. This can be requested in a compliance schedule.

The applicant has not indicated whether or not "209-B-1 High Solids Black Epoxy-ester Bake Coating" is a hazardous waste. A Material Safety Data Sheet was provided for this substance in the July 1986 Part B application. This can be requested in a compliance schedule.

On p.5 of the March 13, 1989 NOD response, the applicant stated that "the cyanide waste is not shown on the Part A permit since it is not stored in the Hazardous Waste Storage Building. All cyanide waste is stored at the Cyanide Waste Storage Area," and on p.6, the applicant stated that "the information on the cyanide material is not enclosed since it will not be stored in the Hazardous Waste Storage Building." No cyanide waste will be permitted for storage.

C-2a Parameters and Rationale: 3-41-4(b)(1)

The applicant has insufficiently responded to the NOD for providing parameters chosen for analysis for each hazardous waste and explaining the rationale for their selection. These analytic parameters are required to provide sufficient information on the waste's properties to appropriately comply with 3-41-49(a) for proper storage, not just to determine if the waste is hazardous. For example, the applicant has indicated that "Paint Sludge" is ignitable and listed as F005. The applicant should also provide all the parameters that will be chosen for analysis for testing of the sludge. This can be requested in a compliance schedule.

C-2b Test Methods: 3-41-4(b)(2)

Page C-3 can be updated to reference the third edition of SW-846.

The applicant has insufficiently responded to the NOD for identifying and referencing (e.g. SW-846, ASTM) the sampling methods used to obtain a representative sampling of each waste to be analyzed. Instead the permittee provided test methods in Table 1 of Attachment C which was revised on March 31, 1989. This can be requested in a compliance schedule.

The applicant should document that the chosen method is appropriate for the type and nature of the waste. This can be requested in a compliance schedule.

D. PROCESS INFORMATION

D-1 Containers

D-1a(2) Container Management Practices: 3-48-3

The procedures provided for ensuring that incompatible wastes are separated are vague. The shipping clerk has a "list" which shows what type of waste goes into each row. The applicant should provide information on who generates the list, their qualifications, how the list is up-dated (annually and when wastes change). The list should include all waste at the facility. This can be requested in a compliance schedule.

The three feet of aisle space is adequate to cover most situations. A permit condition will be added to require removal of other drums to reach another drum (leaking) or which may need to be removed.

D-1a(3) Secondary Containment System Design and Operation: 3-34-6(1)(A), 3-48-6(a), 3-48-6(d)

The design drawings provided (Drawings A-1, A-2, A-3, C-1 and 2332) do not show the slopes of the base and containment area for drainage of spills, etc. This can be requested in a compliance schedule.

D-1a(3)(a) Requirement for the Base or Liner to Contain Liquids: 3-48-6(b)(1)

The facility indicated that information would be submitted by May 15, 1989. It was not available for this review. The base and secondary containment system is concrete and is not impervious unless a coating or lining is applied. A demonstration of the system to meet this requirement should include the capability of the system to contain liquids, including:

- Statement that the system is free of cracks or gaps, include information on the construction joints of trenches and sumps,
- Demonstration of imperviousness of system to wastes,
- Engineering evaluation of structural integrity of system including piping and the above ground tanks,
- Discussion of compatibility of system with wastes.

If the information does not meet these requirements it can be requested in a compliance schedule.

D-1a(3)(b) Containment System Drainage: 3-34-6(1)(B), 3-48-6(b)(2)

The design drawings provided (Drawings A-1, A-2, A-3, C-1 and 2332) do not show the slopes of the base and containment area for drainage of spills, etc. The base must be sloped and the containment system must be designed to drain and remove liquids

resulting from leaks and spills. The containers are not elevated or otherwise protected from contact with accumulated liquids. This can be requested in a compliance schedule.

The facility indicated that information would be submitted by May 15, 1989. It was not available for review. The application states that the containers are not stored on pallets. Information is necessary on the slope of the base and containment system to meet the requirement of sloping to drain and remove liquids resulting from leaks or spills. If the information does not meet these requirements it can be requested in a compliance schedule.

An explanation should be provided on the flow of spilled material in the secondary containment area. Will the spilled waste drain to the sump at the front of the container storage area or to the tanks? This can be requested in a compliance schedule.

D-1a(3)(d) Control of Run-On: 3-34-6(1)(D), 3-48-6(b)(4)

The facility indicated that information would be submitted by May 15, 1989. It was not available for review. Run-on into the containment system is prevented by the walls of the storage building. The applicant claims that surrounding terrain is graded away from the building. Drawings must be provided which substantiate this claim. This can be requested in a compliance schedule.

F. PROCEDURES TO PREVENT HAZARDS

F-1a Warning Signs: 3-41-5(c)

The applicant has stated that the sign reading "Danger-Unauthorized Personnel Keep Out" is legible from a distance of 25 feet. However the applicant has not demonstrated this by describing the lettering dimensions and spacing. The draft permit will require the signs be visible from 25 feet.

F-2a(2) Frequency of Inspections: 3-41-6 (b)(4)

Since two different inspection frequencies were listed for the same item in several cases in the July 1986 Part B submission, the applicant indicated (in response to the NOD) that pp. F-14B, F-14C, and F-14D should be discarded. However, the remaining pages, pp. F-14 and F-14A, do not contain the level of detail in regard to specific items inspected covered in the discarded pages. The applicant must revise the existing checklist to include the following items from discarded pages F-14B through F-14D:

Area/Equipment	Specific Item
Safety and Emergency Equipment	Standard industrial absorbants
	85-gallon drums
	Face shields and extra protective eyeglasses

F-2a(2) (Continued)

	Organic vapor/acid gas respirators
	Spill cleanup tools
	Telephone system
	First aid equipment and supplies
	Protective clothing
Operating and Structural Equipment	Loading and unloading areas for hazardous waste
Container Storage	Sealing of containers
	Warning signs
	Labeling
	Grating

The applicant has not provided the frequency of inspection for the Federal Selectone System described in the contingency plan. The frequency of inspection for these items can be stipulated in the draft permit.

F-3a Equipment Requirements: 3-42-3

F-3a(3) Emergency Equipment: 3-42-3(3)

The applicant indicated that information demonstrating that gloves and other personnel protection equipment are available in the hazardous waste storage building can be found on pages 17 and 18 of the "Spill Prevention Control and Countermeasures Plan." Although safety goggles and self-contained breathing apparatuses are listed, gloves are not listed. This can be changed for the draft permit.

In response to a NOD comment, the applicant indicated that there is no decontamination equipment in the hazardous waste storage building since "all materials used to clean up a hazardous waste spill are treated as a hazardous waste." The applicant does not indicate how equipment, floors, and walls would be properly cleaned in the event of a spill. This can be requested in a compliance schedule.

F-4 Preventative Procedures, Structures, and Equipment

F-4b Run-off: 3-34-5 (b)(8)(B)

Drawings provided do not specify the materials of construction of the trench systems and the trench sump. Drawings do not show the slope of the trench systems. This can be requested in a compliance schedule.

F-5a Precautions to Prevent Ignition or Reaction of Ignitable or Reactive Wastes: 3-34-5(b)(9), 3-41-8(a)

The applicant has not provided sufficient detail regarding special precautions used to transport containers of flammable waste to prevent ignition. Describe how drums are transported to prevent generation of frictional heat and prevent exposure to radiant heat. This can be requested in a compliance schedule.

H. PERSONNEL TRAINING: 3-43-5(b)(12), 3-41-7

H-1 Outline of the Training Program: 3-41-7(a)(1)

H-1b Training Content, Frequency, and Techniques: 3-41-7(c), 3-41-7(d)(3)

The applicant has not specified the frequency of continuing training (including annual reviews) for the fork truck driver. The permittee has not specified that the fork truck driver has been trained in the use of personnel protection equipment. The draft permit can stipulate a time period in which the applicant must demonstrate that the fork truck driver has had the required training.

H-1e Training for Emergency Response: 3-41-7(a)(3)

The applicant has not demonstrated that the training program includes review of the use of communications or alarm systems, procedures for using, inspecting, repairing and replacing facility emergency and monitoring equipment; or response actions to fires. The applicant can be asked to revise the training program in a compliance schedule.

I. CLOSURE AND POST CLOSURE REQUIREMENTS: 3-34-5(B)(13), 3-46-1 through 3-46-11

I-1 Closure Plan: 3-34-5(b)(13), 3-46-3(a)(1) and (2)

The applicant's detailed closure plan was not available for this review. According to the March 13, 1989 NOD response, the facility indicated this information would be submitted by May 15, 1989. If the informations does not meet these requirements it can be requested in a compliance schedule.

I-1c Disposal of Decontamination of Equipment, Structures, and Soils: 3-46-3(b)(4), 3-46-5

Under Section I-1d on p. I-3, the applicant should include a list of test methods to be used to determine if decontamination is complete. The applicant should also state whether the Hazardous Waste Storage Building will be left intact after decontamination, and include the costs of demolition and disposal of the building. According to the March 13, 1989 NOD response, the facility indicated this information would be submitted by May 15, 1989, but was not available for this review. If the information does not meet these requirements it can be requested in a compliance schedule.

I-1c(1) Closure of Containers: 3-48-9

Describe the method used to determine the nature and extent of any contamination in the Hazardous Waste Storage Building. Sampling the wash water to determine when decontamination is complete is inadequate as the levels of contamination in the water would be dependent on the amount of water used. Provision for wipe samples of equipment and structures must be made. Describe the sampling/test procedures to evaluate the effectiveness of decontamination. Describe how many and where samples will be taken. This can be requested in a compliance schedule.

According to the March 13, 1989 NOD response, the applicant indicated that this information would be submitted by May 15, 1989. This information was not available for this review.

I-5g Use of Financial Mechanism for Multiple Facilities: 3-47-4(h)

The financial responsibility must be revised to guarantee the expenses for the most recent closure cost estimates. According to the March 31, 1989 NOD response, the applicant indicated that copies of this information would be submitted on May 15, 1989. This information was not available for this review. If the information does not meet these requirements it can be requested in a compliance schedule

UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
REGION V
230 SOUTH DEARBORN ST.
CHICAGO, ILLINOIS 60604

Copy

REPLY TO ATTENTION OF:
5HR-12

JAN 18 1989

Ms. Carol Barry
GMC Delco Remy
2401 Columbus Avenue
Anderson, Indiana 46018

Dear Ms. Barry:

As your requested by phone on January 17, 1989, I have enclosed a copy of the April 1987 RCRA/Superfund Hotline Report.

If you have any questions I can be contacted at(312) 886-3781.

Sincerely yours,

Daniel Bakk

Daniel Bakk, Engineer
IL/IN Technical Enforcement Section
RCRA Enforcement Branch

Enclosure

5HR-12:Bakk:1/18/88

see page 3 of attachment

Delco Remy

Division of General Motors Corporation 2401 Columbus Avenue P.O. Box 2439 Anderson, Indiana 46018-9986

June 2, 1988

Mr. Hak Cho
U.S. EPA Region 5
230 South Dearborn St.
Chicago, IL 60604

Dear Mr. Cho:

Per our conversation on May 3, 1988, the magnesium chips, which are water reactive, are generated from the machining operations of gages and are a potential fire hazard. As a result, our in-plant fire brigade must go through a mock training on an annual basis which is required by our Contingency Plan (Spill Prevention and Countermeasure Plan). The local police and fire department will be notified in writing as to the place, time, and date of the training. As we discussed, utilizing the magnesium in this manner is not considered treatment of hazardous waste.

As you mentioned, the magnesium chips do not conform to the requirements of a recyclable material under 40 CFR 261.6. Consequently, we will continue to use a Uniform Hazardous Waste Manifest form to ship the magnesium chips from our Columbus Avenue facility (IND980503940) to our waste storage building at our acre facility (IND980503825).

Should any of the information be incorrect, please notify me immediately. I can be reached on (317) 646-2957.

Very truly yours,

Carol Barry

Carol Barry
Environmental Engineer

CB:tp/te

cc: Mr. Dave Koepper, IDEM

See page 3

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF
SOLID WASTE AND EMERGENCY RESPONSE

MEMORANDUM

SUBJECT: Final Monthly Report - RCRA/Superfund Industry Assistance Hotline Report for April 1987

FROM: Joan Warren
Joan Warren, WH-562
Office of Solid Waste

Hubert Watters
Hubert Watters, Office of Emergency and Remedial Response (WH-548B)

TO: See list of addressees

This report is prepared and submitted for EPA contract No. 68-01-7371.

I. ACTIVITIES

A. The Hotline responded to 11,000 questions and requests for documents in April. There was a tremendous surge in callers seeking documents with over 2,000 documents requested. Most callers requested copies of the proposed Underground Storage Tank regulations, CEPP chemical lists and Federal Registers, and the OSWER Directive on Mixed Radioactive Hazardous Waste.

B. On April 1, Mike Moore of OSHA briefed the Hotline on the December 16, 1986 FR dealing with worker safety for hazardous waste and emergency response operations.

C. On April 6, Dave Phillips of the Hotline briefed the staff on electroplating operations and the scope of the electroplating waste listings.

D. On April 9, Jennifer Brock of the Hotline briefed the staff on the proposed UST state program regulations.

E. On April 9, Jim Lounsbury (OSW) briefed the Hotline on EPA's efforts to integrate PCBs into the RCRA program.

F. On April 15, Jennifer Brock attended a brown bag talk on UST state programs.

G. On April 21, Matt Straus (OSW) met with Hotline staff to answer waste identification questions.

H. On April 24, Hotline managers met with Thea McManus and Mia Zmud of OSW and RCRA Docket staff to discuss ongoing work to improve the efficiency of processing document requests.

II. SIGNIFICANT QUESTIONS AND RESOLVED ISSUES

A. RCRA

1. Storage Prior to Recycling

According to the hazardous waste recycling regulations promulgated as part of the January 4, 1985 rule (50 FR 614), owners or operators of facilities that recycle materials without prior storage are subject only to Section 3010 notification requirements and §265.17 and §265.72 manifest regulations per §261.6(c)(2). Do the two following recycling operations involve storage prior to recycling?

(a) Truck drivers with bulk shipments or drums of spent solvent pour the solvent into a receiving bin at a recycling facility. The receiving bin is directly hard-piped to the distillation unit, such that the receiving bin feeds the distillations unit. When the distiller is non-operational (at night), some waste solvents may remain in the feed tank.

(b) As in the first situation, bulk shipments or drum of spent solvent are poured into a receiving device at a second recycling facility. The receiving device is essentially a tank with a pump in the bottom which is connected to a large tube that directly feeds into the distillation unit. The pump is in operation whenever there is waste in the tank. Therefore, the tank never contains solvent when the distillation unit is not in operation.

(a) Although there is no time limit for storage, the two recycling facilities are fundamentally different. The first recycler uses the receiving bin to store waste when the distillation unit is not operating. Per §261.6(c)(1), he is subject to the storage standards.

(b) In the case of the second recycler, he does not use the receiving bin for storage. His receiving bin is more clearly used only for conveyance, not storage. The bin is more directly tied to the operation of the recycling unit and indeed, could be viewed as part of the recycling unit. Hence, the second recycler would only be subject to §261.6(c)(2) (i.e., getting an EPA ID number and complying with the manifest standards.)

Source: Matt Straus (202) 475-8551
Research: Kim Gotwals

2. Solvent Drippings from Degreasing Operations

A ball-bearing manufacturer dips metal parts in a degreasing tank of pure 1,1,1-trichloroethane. Once the parts have been dipped, they are ground. The cooling system (either oil or water is used as the fluid) picks ups the grinding sand, metal flakes, and traces of solvent left on the part. The fluid is then filtered for reuse, and the sand-metal-solvent mixture is discarded. Are the traces of solvent left on the parts after degreasing classified as F001? Is the sand-metal-solvent mixture regulated as a hazardous waste when discarded?

The small amount of solvent remaining on the part after it has been dipped will not be regulated as F001. If the sand-metal-solvent mixture exhibits any of the characteristics of hazardous waste as defined in Subpart C of 40 CFR Part 261, then the mixture would be regulated as a hazardous waste.

Source: Matt Straus 475-8851
Steve Silverman 382-7706

Research: Becky Cuthbertson 382-3112

3. Multiple Generator Location and Consolidation

A company owns several small factories in different counties. Each factory generates less than 100 kilograms of hazardous waste per month, and is subject to reduced regulation under §261.5. Options for disposal of waste from conditionally exempt generators are provided in §261.5(f)(3). (a) May the conditionally exempt generators transport waste to one of the company's facilities for consolidation and subsequent shipment to a RCRA disposal facility? (b) Does the facility of the generator who is consolidating the waste qualify as a "transfer facility"? (c) Does the generator who consolidates the waste become a full quantity generator if he ships more than 1000 kg of hazardous waste from his site per month? (or a 100-1000 kg/mo generator if he ships between 100 and 1000 kg of waste per month?)

(a) Under §261.5(f)(3) in order to remain exempt from certain regulations, a conditionally exempt small quantity generator may ensure delivery of his hazardous waste to a storage, treatment, or disposal facility that is one the following types of facilities:

(i.) permitted under Part 270 of 40 CFR; or
(ii.) in interim status under Parts 265 and 270 of 40 CFR; or
(iii.) authorized to manage hazardous waste by a state with a hazardous waste management program approved under Part 271 of 40 CFR; or

C.2 Compliance And Enforcement

5HR-12

NOV 23 1988

Thomas Russell, Chief
Hazardous Waste Management Branch
Indiana Department of
Environmental Management
105 South Meridian Street
P.O. Box 6015
Indianapolis, Indiana 46206-6015

Dear Mr. Russell:

My office received a telephone inquiry on November 15, 1988, from GMC-Delco Remy, Anderson, Indiana concerning the characterization of an oily sludge waste being generated at their plant. According to the caller, your office classified this waste as non-hazardous, but a hazardous treatment facility (Michigan Disposal, Inc.) has rejected it. The enclosed conversation record summarizes that discussion.

A review of our records indicates that no land disposal restriction (LDR) inspection has been performed at this facility. I am referring this matter to your office and request that your staff conduct an LDR inspection and follow-up investigation on the characterization of the oily sludge waste referenced in this recent inquiry.

If you have any questions on this matter please contact Daniel Bakk of my staff at (312) 886-3781.

Sincerely yours,
ORIGINAL SIGNED BY
WILLIAM E. MUNO
William E. Muno, Chief
RCRA Enforcement Branch

Enclosure

5HR-12:Bakk:lr:11/21/88:#39

ap 11/23/88

	TYP.	AUTH.	IL/IN TECH. ENF. SEC.	MI/WI TECH. ENF. SEC.	OH/MN TECH. ENF. SEC.	IL/MI/WI ENF. PROC. SECTION	IN/MN/OH ENF. PROG. SECTION	RCRA ENF. BR. CHIEF	O.R. A.D.O.	W.D. D.D.
INIT. DATE	11/22/88	11/22	11/22/88					WEM 11/23/88		

O. WMD
CC: RF
WATER

Delco Remy

Division of General Motors Corporation 2401 Columbus Avenue P.O. Box 2439 Anderson, Indiana 46018-9986

W10

December 16, 1987

Mr. Valdas V. Adamkus, Administrator
USEPA Region V
230 South Dearborn
Chicago, IL 60604

Re: IND 980503940

Dear Mr. Adamkus:

Delegation of authority to sign letter is enclosed for our Delco Remy plants in Anderson and Muncie Indiana and the M.G. Corporation and Universal Tool and Engineering Company, Inc. at 7601 East 88th Place, Indianapolis, IN 46256.

Sincerely,

Jack Kyhnell

Jack kyhnell
Plant Engineering

Enclosure

Delco Remy

Division of General Motors Corporation 2401 Columbus Avenue P.O. Box 2439 Anderson, Indiana 46018-9986

Subject: DELEGATION OF AUTHORITY TO SIGN PERMIT APPLICATIONS UNDER EPA PROGRAMS

12-16-87

From: H. K. Patel

To: Director of QMOS

IND 980503 940

As provided under 40 CFR 122.22, 144.32, 233.6, 270.11 and 403.12 of the "Environmental Permit Regulation", the position of Director of QMOS is hereby designated as my duly authorized representative for the Delco Remy Division at Anderson, Indiana. As such the Director - QMOS is authorized to sign all permit applications, all reports required by permits, and other information requested by the EPA or a corresponding state or municipal agency, submitted for the following programs:

1. National Pollutant Discharge Elimination System (NPDES) of the Clean Water Act (40 CFR 122)

2. Underground Injection Control Program of the Safe Drinking Water Act (40 CFR 144)

3. Dredge or Fill (404) Program of the Clean Water Act (40 CFR 233)

4. Hazardous Waste Permit Program of the ResourCe Conservation and Recovery Act (40 CFR 270)

5. Pretreatment regulations for existing and new sources of pollution of the Clean Water Act (40 CFR 403)

In the absence of the individual occupying the designated position due to vacation, illness, or other reasons, the individual temporarily responsible for the operation of the facility or activity is my duly authorized representative.

H. K. Patel
General Manager

cc: EPA Regional Administrator/State Director

FISHER GUIDE

Fisher Guide Division
General Motors Corporation

P.O. Box 2459
Anderson, Indiana 46018-2459

Anderson Operations

DATE: May 16, 1986

SUBJECT: DELEGATION OF AUTHORITY TO SIGN PERMIT APPLICATIONS UNDER EPA PERMIT PROGRAMS

TO: Manager, Lighting Products Group, Fisher Guide Anderson Plant
Plant Manager, Fisher Guide Monroe, Louisiana Plant

As provided under 40 CFR 122.22, 144.22, 233.6, and 270.11 of the "Environmental Permit Regulations", the position of Manager, Lighting Products Group is hereby designated as my duly authorized representative for the Fisher Guide Plant in Anderson, Indiana. Also, the position of Plant Manager is hereby designated as my duly authorized representative for the Fisher Guide Plant in Monroe, Louisiana. As such, these representatives are authorized to sign all permit applications, all reports required by permits, and other information requested by the EPA or a corresponding state or municipal agency submitted for the following programs:

1. National Pollutant Discharge Elimination System (NPDES) of the Clean Water Act (40 CFR 122).

2. Underground Injection Control Program of the Safe Drinking Water Act (40 CFR 144).

3. Dredge or Fill (404) Program of the Clean Water Act (40 CFR 233).

4. Hazardous Waste Permit Program of the Resource Conservation and Recovery Act (40 CFR 270).

In the absence of either designated representative due to vacation, illness or other reasons, the individual temporarily responsible for the operation of the facility or activity is my duly authorized representative.

R. L. McKee

R. L. McKee
General Manager

cc: EPA Regional Administrator, Region V
Indiana Department of Health -
Environmental Management Board

EPA Regional Administrator, Region VI
Department of Natural Resources -
Office of Environmental Affairs

pkb

Delco Remy

Division of General Motors Corporation 2401 Columbus Avenue P.O Box 2439 Anderson, Indiana 46018-9986

TO TPS
w/copy to Prush

RECEIVED
OCT 16 1986
U. S. EPA REGION 5
OFFICE OF REGIONAL ADMINISTRATOR

IND 980 503 940
IND 980 503 825

RECEIVED
OCT 20 1986
U.S. EPA, REGION V

October 14, 1986

Mr. Valdas V. Adamkus, Administrator
USEPA Region V
230 South Dearborn
Chicago, IL 60604

Dear Mr. Adamkus:

Delegation of authority to sign letters are enclosed for the Delco Remy plants at Anderson, Indiana.

Sincerely,

Jack Kyhnell

Jack Kyhnell, P.E.
Environmental Engineer
Plant Engineering

JK:df

Enclosure

O. WATER
CC: RF (CERT #3387
WMD

RECEIVED
OCT 17 1986
U.S. EPA, REGION V
WASTE MANAGEMENT DIVISION
OFFICE OF THE DIRECTOR

Delco Remy

Inter-Organizatic

Delco Remy Division of General Motors Corporatic

Subject: DELEGATION OF AUTHORITY TO SIGN PERMIT APPLICATIONS UNDER EPA PROGRAMS

Date: 10-8-86

From: J. F. Ault

To: W. L. Steinbrunner, Director - QMOS

As provided under 40 CFR 122.22, 144.32, 233.6, and 270.11 of the "Environmental Permit Regulation", the position of the Director of QMOS is hereby designated as my duly authorized representative for Delco Remy Division at Anderson, Indiana. As such the Director of QMOS is authorized to sign all permit applications, all reports required by permits, and other information requested by EPA or a corresponding state of municipal agency, submitted for the following programs:

1. National Pollutant Discharge Elimination System (NPDES) of the Clean Water Act (40 CFR 122)

2. Underground Injection Control Program of the Safe Drinking Water Act (40 CFR 144)

3. Dredge or Fill (404) Program of the Clean Water Act (40 CFR 233)

4. Hazardous Waste Permit Program of the Resource Convention and Recovery Act (40 CFR 270)

In the absence of the individual occupying the designated position due to vacation, illness, or other reasons, the individual temporarily responsible for the operation of the facility or activity is my duly authorized representative.

J. F. Ault
General Manger

cc: EPA Regional Administrator/State Director

JA:df

DR-47

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
NANCY A. MALOLEY, Commissioner

105 South Meridian Street
P.O. Box 6015
Indianapolis 46206-6015
Telephone 317-232-8603

December 6, 1988

Mr. William Muno, Chief
RCRA Enforcement Branch, 5HR-12
U.S. EPA, Region V
230 South Dearborn Street
Chicago, IL 60604

Re: Inspection of GMC Delco Remy
IND 980503940
Anderson, Madison County

Dear Mr. Muno:

This is response to your letter of November 23, 1988, requesting that this office conduct a "land disposal restriction" (LDR) inspection at the above referenced facility. Your request was prompted by a telephone conversation between Ms. Carol Barry, of the facility, and Mr. Joe Baker, of your office, concerning the issue of whether the company's "oily sludge" should be classified as a hazardous waste subject to the LDR requirements.

Because of limited staff, the Compliance Monitoring Section routinely coordinates LDR inspections with the scheduled evaluation inspections (SCE) required under our grant work plan. The above-referenced facility is scheduled for inspection during the fourth quarter of FY 89. We hesitate re-scheduling the inspection unless it is essential.

Mr. Jeff Blankenberger of the Compliance Monitoring Section last inspected the facility on August 7, 1986. It is his opinion that the oily sludge would probably not be a hazardous waste; in which case, the waste would not be subject to the LDR requirements. It would be more logical to consider the presence of the solvent a result of incidental or "de minimis" contamination resulting from normal manufacturing operations as described in 40 CFR 261.3(iv)(D). Although that citation refers specifically to contamination of wastewater, it seems reasonable that the same logic should apply to contamination of solid waste.

It is understandable that a disposal facility would be hesitant to accept a waste when an analysis suggests that the waste may be subject to the LDR requirements. However, we do not believe that an inspection is warranted, or that it would even resolve the issue at hand. The question that must be answered is whether the de minimis contamination of a solid waste is grounds for classifying the waste as a listed hazardous waste. We would be interested in your agency's position in that respect.

If we can be of any further assistance with respect to resolving this issue, please contact Mr. James Hunt of this office at AC 317/232-4535.

Very truly yours,

Thomas Russell

Thomas L. Russell, Chief
Hazardous Waste Management Branch
Solid and Hazardous Waste Management

JMH

cc: Mr. Daniel Bakk
Ms. Carol Barry
Mr. Jeff Blankenberger
Mr. Dave Berrey
Mr. Steve Hunter

DRAFT REPORT
LAND BAN INSPECTIONS

Prepared for

U.S. ENVIRONMENTAL PROTECTION AGENCY
Office of Waste Programs Enforcement
Washington, D.C. 20460

Work Assignment No.	:	316
EPA Region	:	V
Site No.	:	IND908503825
Contract No.	:	68-01-7331
CDM Federal Programs Corporation Document No.	:	T316-R05-DR-DJUR-2
Prepared By	:	PRC Environmental Management Inc.
Work Assignment Project Manager	:	Eddy Lin
Telephone Number	:	(312) 856-8700
Primary Contact	:	Kevin Moss
Telephone Number	:	(312) 886-4436
Date Prepared	:	July 6, 1989

PRC Environmental Management, Inc.
303 East Wacker Drive
Suite 500
Chicago, IL 60601
312-856-8700
FAX# 938-0118

prc

Planning Research Corporation

T0316-R 5-LR-DJUR- 1

June 20, 1989

Mr. Kevin Moss
RCRA Enforcement Section
HW Enforcement Branch
U.S.EPA Region 5 (5HE-12)
230 South Dearborn Street
Chicago, IL 60604

Re: Work Assignment : 316
Contract No. 68-01-7331
Facility Name: General Motors Corporation, Delco Remy Division
EPA I.D. No. IND 980503825

Dear Mr. Moss:

This letter report presents the findings of a Land Disposal Restriction (LDR) inspection conducted by PRC Environmental Management Inc. (PRC) on April 10, 1989 at the General Motors Corporation, Delco Remy Division, Anderson facility. Delco Remy manages restricted wastes and operates a hazardous waste storage facility. A detailed discussion of waste management at the facility is provided in the attached checklist. PRC did not identify any deficiency during the LDR inspection.

As part of the inspection, PRC was requested to investigate whether the grinding sludge generated from the distributor shaft grinding operations is a restricted waste. The following paragraphs discuss the findings of this investigation.

Grinding sludge is generated from the grinding of distributor shafts. Cooling oil is used to cool the shafts during the grinding operation. Cooling oil and grinding sludge are collected in a tank under the grinding machine. After grinding, distributor shafts are transported to a collection box through a conveyer. To remove the cooling oil left on the conveyer rollers, Delco Remy sprayed canned aerosol 1,1,1-trichloroethane (TCA) on the rollers. The majority of the TCA evaporated, but some TCA was sprayed over the grinding sludge or dripped into the grinding sludge collection tank from the rollers. After some time, the grinding sludge was transported to a mud wagon (a 4 by 4 by 4-foot container). The free-cooling oil in the grinding sludge was drained to the sewer and caught by the API oil separator in the on-site wastewater treatment plant. The grinding sludge was solidified and disposed of as nonhazardous waste by Michigan Disposal, Inc. (MDI). The spent cooling oil was sent to Heritage Environmental Services (HES) for reclamation. Currently, the grinding sludge is solidified with cement kiln dust in a mud wagon on-site and then disposed of as nonhazardous waste in Adams Center Landfill located in Fort Wayne, Indiana.

In November 1988, MDI rejected one load of grinding sludge because the restricted F-solvent constituent concentrations in the sludge exceeded the applicable LDR treatment standards. Delco Remy's GC/MS analysis results of the grinding sludge showed 2.9 mg/Kg acetone; 0.67 mg/Kg toluene; 0.63 mg/Kg xylene (Appendix A). The grinding sludge also was tested for the characteristics of hazardous waste; however, the results did not show any characteristic of hazardous waste (Appendix B). Delco Remy's Toxicity Characteristic Leachate Procedure (TCLP) analysis of the virgin cooling oil showed 0.41 mg/Kg TCA; 1.7 mg/Kg ethylbenzene; 3.2 mg/Kg methyl ethyl ketone; 3.2 mg/Kg toluene; and 7.5 mg/Kg xylene (Appendix C). Delco Remy

stopped using TCA to clean the rollers and switched to Simple Green, and later to Fantastic and WD-40. On December 1, 1988, Delco Remy shipped the rejected load from MDI to HES as nonhazardous waste. In January 1989, a subsequent TCLP analysis of grinding sludge showed 18 mg/Kg TCA (Appendix D). Delco Remy could not explain the reason why the TCA was detected after they stopped using it. However, Appendices C and D both were using TCLP, but its detection limits were different and the detection limits for Appendix D analysis were much higher than the F-solvent treatment standards. In addition, the unit specified in Appendices A, C and D are mg/Kg, instead of mg/L as specified in table CCWE.

To determine whether the grinding sludge is a restricted waste, it should first be determined (a) If the grinding sludge is contaminated with a solvent, or (b) If the grinding sludge is contaminated with a spent solvent. According to the mixture rule, a solid waste is a hazardous waste if it is mixed with a listed hazardous waste (40 CFR 261.3 (a)(2)(iv). In this case, the grinding sludge is contaminated with TCA. TCA is a listed hazardous waste (F001) if it is spent and used in the degreasing operation. Based on the observation of the grinding operation, the grinding sludge was contaminated with TCA by either overspraying the rollers with TCA or TCA dripping from the rollers. In this case, TCA was used in the degreasing operation of conveyer rollers. GM has stopped the use of TCA as a degreasing reagent. To determine whether or not the grinding sludge was contaminated by a solvent or spent solvent, there are two scenarios to be considered:

1) Once the TCA leaves the aerosol can, it cannot be reused, thus, it is spent. Solvent adhering to the rollers may not be spent, but that which drips off would be considered spent. Therefore, any mixture of grinding sludge mixed with the overspraying or drippings would be considered a hazardous waste, thus, a restricted waste.

2) A case was studied by EPA: A ball-bearing manufacturer dips metal parts in a degreasing tank of pure 1,1,1-TCA. Once the parts have been dipped, they are ground. The cooling system (either oil or water) picks up the grinding sand, metal flakes, and traces amount of solvent left on the part. The question was asked whether the trace amount of solvent left on the parts after degreasing is classified as F001.

   According to Mr. Straus of EPA, the small amount of solvent remaining on the part after it has been dipped will not be regulated as F001. If the sand-metal-solvent mixture exhibits any of the characteristics of hazardous waste as defined in subpart C of 40 CFR Part 261, then the mixture would be regulated as a hazardous waste. If we interpret the TCA dripping from the rollers is a similar situation like the solvent left on the parts, thus, the solvent is not a listed hazardous waste. The grinding sludge is a hazardous waste only if it exhibits the characteristics of hazardous waste. Delco Remy tested the grinding sludge and the analysis results showed that the sludge did not exhibit any characteristics of hazardous waste. Therefore, the grinding sludge is not a hazardous waste and is not a restricted waste.

Per your discussion with Mr. Straus of EPA Headquarters about the ball-bearing and Delco Remy cases. EPA Headquarters recommends that the solvent in the ball-bearing operation and Delco Remy case is not regulated as spent solvent because of the small quantity and is part of the industrial process. Based on EPA Headquarter's interpretation, the TCA is not a spent solvent, thus, the grinding sludge is not a hazardous and restricted waste. However, it is still unclear where did the TCA come from after Delco Remy switched to WD-40 and Fantastic. PRC recommends EPA to request Delco Remy to conduct an investigation to find out the source of TCA contamination.

If you have any questions regarding this letter report, please call me at 312-856-8700.

Sincerely,

Eddy S. Lin

Attachment

APPENDIX A

GRINDING SLUDGE VOLATILE ORGANIC ANALYSIS RESULTS (OCTOBER 1988)

CERTIFICATE OF ANALYSIS

---- CORRESPOND TO ---------- **SAMPLE ----------**

EMS Laboratories, Inc.
7901 West Morris Street
Indianapolis, Indiana 46231
(317) 243-8304

EMS SAMPLE : 112154
REPORT DATE : 11/01/88
DATE RECEIVED : 10/18/88
DATE COMPLETE : 10/31/88

---------- REPORT TO ---------- **BILL TO ----------**

CAROL BARRY
DELCO REMY
DIVISION GENERAL MOTORS
2401 COLUMBUS AVENUE
PLANT 1 ROOM 555
ANDERSON IN 46018

CAROL BARRY
DELCO REMY DIVISION OF GENERAL MOTORS
PLANT 1 ROOM 555
2401 COLUMBUS AVENUE
ANDERSON IN 46018

---------- DESCRIPTION ----------

OIL SLUDGE, SULFURIC ACID, ETC.
QUART AMBER (111132) RESUBMITTED
P.O. NUMBER : DR 249567

DATE :
TIME :

TEST DESCRIPTION / ANALYTE	RESULT	METHOD	DATE / DET. LIMIT	ANALYST / UNITS
VOLATILE ORGANICS, RCRA		SW846-8240	10/28/88	RFS
GC/MS File	: 24048		NA	NA
Date/Time of Analysis	: 10/28/88 18:18			
Continuing Calibration File	: G24040.S			
Method Blank File	: G24041.B			
MS/MSD File	: G24050.M			
SURROGATE LIST (spike conc)	: mg/Kg			
Dichloroethane-d4	: 115		(50)	% Rec
Toluene-d8	: 96		(50)	% Rec
Bromofluorobenzene	: 106		(50)	% Rec
TARGET COMPOUND LIST	:			
Acetone	: 2.9		0.63	mg/Kg
Acrolein	: ND		3.1	mg/Kg
Acrylonitrile	: ND		4.4	mg/Kg
Benzene	: ND		0.31	mg/Kg
Bromodichloromethane	: ND		0.31	mg/Kg
Bromoform	: ND		0.31	mg/Kg
Bromomethane	: ND		0.63	mg/Kg
Carbon disulfide	: ND		0.31	mg/Kg
Carbon tetrachloride	: ND		0.31	mg/Kg
Chlorobenzene	: ND		0.31	mg/Kg
Chloroethane	: ND		0.63	mg/Kg
Chloroform	: ND		0.31	mg/Kg
Chloromethane	: 0.35		0.63	mg/Kg
Dibromochloromethane	: ND		0.31	mg/Kg

EMS SAMPLE : 112154

TEST DESCRIPTION ANALYTE	RESULT	METHOD DET. LIMIT	DATE ANALYST UNITS
cis-1,3-Dichloropropene..... :	ND	0.31	mg/Kg
Dichlorodifluoromethane..... :	ND	0.31	mg/Kg
1,1-Dichloroethane..... :	0.36	0.31	mg/Kg
1,2-Dichloroethane..... :	ND	0.31	mg/Kg
1,1-Dichloroethene..... :	ND	0.31	mg/Kg
1,2-Dichloropropane..... :	ND	0.31	mg/Kg
Ethylbenzene..... :	ND	0.31	mg/Kg
Fluorotrichloromethane..... :	ND	0.31	mg/Kg
2-Hexanone..... :	ND	0.63	mg/Kg
Methylene chloride..... :	ND	0.31	mg/Kg
Methyl ethyl ketone..... :	ND	0.63	mg/Kg
4-Methyl-2-pentanone..... :	ND	0.63	mg/Kg
Styrene..... :	ND	0.31	mg/Kg
1,1,2,2-Tetrachloroethane..... :	ND	0.31	mg/Kg
Tetrachloroethene..... :	ND	0.31	mg/Kg
Tetrahydrofuran..... :	ND	1.6	mg/Kg
Toluene..... :	0.67	0.31	mg/Kg
1,2-Dichloroethene (total).... :	ND	0.31	mg/Kg
trans-1,3-Dichloropropene..... :	ND	0.31	mg/Kg
1,1,1-Trichloroethane..... :	ND	0.31	mg/Kg
1,1,2-Trichloroethane..... :	ND	0.31	mg/Kg
Trichloroethene..... :	ND	0.31	mg/Kg
Vinyl acetate..... :	ND	0.63	mg/Kg
Vinyl chloride..... :	ND	0.63	mg/Kg
Xylenes (total)..... :	0.63	0.31	mg/Kg
ALSO DETECTED:			
Unknown.....:		13.76	min
Unknown.....:		29.81	min
Dimethyl octatriene.....:		28.90	min
Methyl cyclopentane.....:		17.85	min

ND - Not Detected
NA - Not Applicable
Sample was not received in the proper container for the analytes requested.

Approved by : D. Peterson

APPENDIX B

GRINDING SLUDGE CHARACTERISTIC ANALYSIS RESULTS (OCTOBER 1988)

CERTIFICATE OF ANALYSIS

CORRESPOND TO

EMS Laboratories, Inc.
7901 West Morris Street
Indianapolis, Indiana 46231
(317) 243-8304

SAMPLE

EMS SAMPLE : 112186
REPORT DATE : 11/03/88
DATE RECEIVED : 10/19/88
DATE COMPLETE : 11/02/88

REPORT TO

CAROL BARRY
DELCO REMY
DIVISION GENERAL MOTORS
2401 COLUMBUS AVENUE
PLANT 1 ROOM 555
ANDERSON IN 46018

BILL TO

CAROL BARRY
DELCO REMY DIVISION OF GENERAL MOTORS
PLANT 1 ROOM 555
2401 COLUMBUS AVENUE
ANDERSON IN 46018

DESCRIPTION

OILY SLUDGE

DATE :
TIME :

P.O. NUMBER : DR 249567

TEST DESCRIPTION / ANALYTE	RESULT	METHOD	DATE / DET. LIMIT	ANALYST / UNITS
SULFIDE		SW846-9030	10/24/88	BAS
SULFIDE, TOTAL	ND		10	MG/KG
CYANIDE, TOTAL AVAILABLE		SW 7.3.3.2	10/24/88	JKP
CYANIDE, TOT. AVAIL.	ND		0.1	MG/KG
TOTAL SOLIDS DRIED AT 103-105 C		EPA 160.3	10/20/88	MRW
SOLIDS, TOTAL	73		1	%
IGNITABILITY, SOLIDS ASSESSMENT		EMS G515.0	10/25/88	JKP
SOLIDS IGNITABILITY	NEGATIVE		NA	DEGREES F
pH S/S/S		SW846-9045	10/19/88	AJD
PH	8.9		0.1	STD. UNITS
ARSENIC, LEACHATE		SW846-7060	10/31/88	RLB
ARSENIC, LEACHATE	ND		0.50	MG/L
INSTRUMENT	PE 5100 GFAA			
ADDITION 1 (MG/L)	0.010			
ADDITION 2 (MG/L)	0.020			
ADDITION 3 (MG/L)	0.040			
SAMPLE (ABS)	ND			
SAMPLE + ADD 1 (ABS)	0.049			
SAMPLE + ADD 2 (ABS)	0.087			
SAMPLE + ADD 3 (ABS)	0.177			
DILUTION	1:50			
BARIUM, LEACHATE		SW846-7080	10/28/88	HHW

TEST DESCRIPTION / ANALYTE		RESULT	METHOD	DATE / DET. LIMIT	ANALYST / UNITS
BARIUM, LEACHATE		ND		2.0	MG/L
INSTRUMENT		IL S12 FAA			
ADDITION 1 (MG/L)		1.0			
ADDITION 2 (MG/L)		2.5			
ADDITION 3 (MG/L)		5.0			
SAMPLE	ABS	ND			
SAMPLE + ADD 1	ABS	0.023			
SAMPLE + ADD 2	ABS	0.063			
SAMPLE + ADD 3	ABS	0.138			
DILUTION		1:10			
CADMIUM, LEACHATE			SW846-7130	10/28/88	HHW
CADMIUM, LEACHATE		ND		0.020	MG/L
INSTRUMENT		IL S12 FAA			
ADDITION 1 (MG/L)		0.20			
ADDITION 2 (MG/L)		0.50			
ADDITION 3 (MG/L)		1.00			
SAMPLE	ABS	ND			
SAMPLE + ADD 1	ABS	0.075			
SAMPLE + ADD 2	ABS	0.181			
SAMPLE + ADD 3	ABS	0.360			
DILUTION		NA			
CHROMIUM, LEACHATE			SW846-7190	10/28/88	HHW
CHROMIUM, LEACHATE		0.40		0.050	MG/L
INSTRUMENT		IL S12 FAA			
ADDITION 1 (MG/L)		0.40			
ADDITION 2 (MG/L)		1.00			
ADDITION 3 (MG/L)		2.00			
SAMPLE	ABS	0.023			
SAMPLE + ADD 1	ABS	0.052			
SAMPLE + ADD 2	ABS	0.089			
SAMPLE + ADD 3	ABS	0.150			
DILUTION		NA			
LEAD, LEACHATE			SW846-7420	10/28/88	HHW
LEAD, LEACHATE		ND		0.20	MG/L
INSTRUMENT		IL S12 FAA			
ADDITION 1 (MG/L)		2.0			
ADDITION 2 (MG/L)		5.0			
ADDITION 3 (MG/L)		10.0			
SAMPLE	ABS	ND			
SAMPLE + ADD 1	ABS	0.098			
SAMPLE + ADD 2	ABS	0.244			
SAMPLE + ADD 3	ABS	0.466			
DILUTION		NA			
MERCURY, LEACHATE			SW846-7470	11/01/88	LLJ
MERCURY, LEACHATE		ND		0.005	MG/L
INSTRUMENT		IL V12E FAA			

TEST DESCRIPTION / ANALYTE	RESULT	METHOD	DATE / DET. LIMIT	ANALYST / UNITS
ADDITION 1 (MG/L)	: 0.0005			
ADDITION 2 (MG/L)	: 0.0010			
ADDITION 3 (MG/L)	: 0.0020			
SAMPLE (ABS)	: ND			
SAMPLE + ADD 1 (ABS)	: 0.065			
SAMPLE + ADD 2 (ABS)	: 0.116			
SAMPLE + ADD 3 (ABS)	: 0.228			
DILUTION	: 10:1			
SELENIUM, LEACHATE		SW846-7740	10/30/88	RLB
SELENIUM, LEACHATE	: ND		0.25	MG/L
INSTRUMENT	: PE 5100 GFAA			
ADDITION 1 (MG/L)	: 0.010			
ADDITION 2 (MG/L)	: 0.020			
ADDITION 3 (MG/L)	: 0.040			
SAMPLE (ABS)	: 0.010			
SAMPLE + ADD 1 (ABS)	: 0.030			
SAMPLE + ADD 2 (ABS)	: 0.055			
SAMPLE + ADD 3 (ABS)	: 0.098			
DILUTION	: 1:50			
SILVER, LEACHATE		SW846-7760	10/28/88	HHW
SILVER, LEACHATE	: ND		0.040	MG/L
INSTRUMENT	: IL S12 FAA			
ADDITION 1 (MG/L)	: 0.20			
ADDITION 2 (MG/L)	: 0.50			
ADDITION 3 (MG/L)	: 1.00			
SAMPLE ABS	: ND			
SAMPLE + ADD 1 ABS	: 0.040			
SAMPLE + ADD 2 ABS	: 0.094			
SAMPLE + ADD 3 ABS	: 0.174			
DILUTION	: NA			
EP TOXICITY EXTRACTION, WITHOUT ORGANICS		SW846-1310	10/24/88	AJD
EP TOX EXT, W/O	: COMPLETE		NA	NA
TOT SAMPLE WEIGHT, G	: 50			
SOLID PORTION, G	: 50			
LIQUID PORTION, ML	: 0			
9.5 mm SIEVE TEST	: PASSED			
INITIAL DI ADDED, ML	: 800			
FINAL DI ADDED, ML	: 0			
INITIAL PH	: 9.5			
FINAL PH	: 5.4			
PH ADJUSTMENTS	: ATTACHED			
TOTAL ACID ADDED, ML	: 200			
VOL EXTRACT FILT, ML	: 1000			
TOT VOL FILTRATES,ML	: 1000			
VOL EXTRACT ANAL, ML	: 19			
SPIKE SOLUTION, ML	: 1			
SULFIDE, TOTAL AVAILABLE EXTRACTION		SW 7.3.4.1	10/24/88	BAS

EMS SAMPLE : 112186

TEST DESCRIPTION / ANALYTE	RESULT	METHOD	DATE / DET. LIMIT	ANALYST / UNITS
SULFIDE, T.A. EXT	: COMPLETE		0.1	NA
ACID DIGESTION OF LEACHATE FOR FAA OR ICP		SW846-3010	10/26/88	SON
METALS DIGESTION	: COMPLETE		NA	ML
INITIAL VOL, ML	: 100			
FINAL VOL, ML	: 100			
ACID DIGESTION OF LEACHATE FOR GFAA		SW846-3020	10/26/88	SON
METALS DIGESTION	: COMPLETE		NA	ML
INITIAL VOL, ML	: 100			
FINAL VOL, ML	: 100			

ND - Not Detected
NA - Not Applicable

Approved by : D L Peterson

DATE 10-24-88
TECHNICIAN AJD

ST P 101.1

SAMPLE NUMBER	112185 #31	112182	112184	112186	112426	112427
TIME, hr meter	+15	+15	+15	+15	+15	+15
pH INITIAL	9.1	5.7	4.6	9.5	5.4	5.9
pH FINAL	4.3	4.9	4.6	5.0	5.0	4.9
VOL. ACID, ml	7	.2	0	142	4	4
TIME, hr meter	+15	+30	+30	+15	+30	+15
pH INITIAL	5.6	5.7	4.7	5.9	5.2	5.3
pH FINAL	4.8	4.8	4.7	5.0	5.2	4.7
VOL. ACID, ml	4	.6	0	58	0	3
TIME, hr meter	+30	+60	+60		+60	+30
pH INITIAL	5.2	5.7	4.7		5.2	5.2
pH FINAL	5.2	5.0	4.7	5.4	5.2	5.2
VOL. ACID, ml	0	.1	0		0	0
TIME, hr meter	+60	+60	+60		+60	+60
pH INITIAL	5.5	5.2	4.7		5.2	5.2
pH FINAL	5.0	5.2	4.7		5.2	5.2
VOL. ACID, ml	3	0	0		0	0
TIME, hr meter	+60	+60	+60		+60	+60
pH INITIAL	5.0	5.4	4.7		5.2	5.2
pH FINAL	5.0	4.8	4.7		5.2	5.2
VOL. ACID, ml	0	.2	0		0	0
TIME, hr meter	+60	+60	+60		+60	+60
pH INITIAL	5.3	5.2	4.7		5.2	5.2
pH FINAL	4.9	5.2	4.7		5.2	5.2
VOL. ACID, ml	1	0	0		0	0
TIME, hr meter	+60	+60	+60		+60	+60
pH INITIAL	5.1	5.2	4.7		5.2	5.2
pH FINAL	5.1	5.2	4.7		5.2	5.0
VOL. ACID, ml	0	0	0		0	2
TIME, hr meter	+60	+60	+60		+60	+60
pH INITIAL	5.2	5.3	4.7		5.3	5.1
pH FINAL	5.2	4.7	4.7		5.1	5.1
VOL. ACID, ml	0	.5	0		1	0
TIME, hr meter	+240	+240				
pH INITIAL	5.8	5.4				
pH FINAL	5.0	4.8	4.8		5.2	5.2
VOL. ACID, ml	14	1				
TIME, hr meter						
pH INITIAL						
FINAL	5.2	4.8				
VOL. ACID, ml						

88JS1479.B

APPENDIX C

VIRGIN OIL TCLP ANALYSIS RESULTS
(JANUARY 1989)

CERTIFICATE OF ANALYSIS

CORRESPOND TO

EMS Laboratories, Inc.
7901 West Morris Street
Indianapolis, Indiana 46231
(317) 243-8304

SAMPLE

EMS SAMPLE : 117839
REPORT DATE : 02/04/89
DATE RECEIVED : 01/25/89
DATE COMPLETE : 02/03/89

REPORT TO

CAROL BARRY
DELCO REMY
DIVISION GENERAL MOTORS
2401 COLUMBUS AVENUE
PLANT 1 ROOM 555
ANDERSON IN 46018

BILL TO

CAROL BARRY
DELCO REMY DIVISION OF GENERAL MOTORS
PLANT 1 ROOM 555
2401 COLUMBUS AVENUE
ANDERSON IN 46018

DESCRIPTION

M-0165-001 VIRGIN OIL
GPR-___
P.O. NUMBER : DR 249567

DATE : 01/24/89
TIME : 04:30

TEST DESCRIPTION / ANALYTE	RESULT	METHOD / DET. LIMIT	DATE / ANALYST / UNITS
TCLP VOLATILE ORGANICS, RCRA (LANDBAN CCWE)		SW846-8240	01/31/89 AKJ
GC/MS File	9249D	NA	NA
Date/Time of Analysis	1/31/89 18:17		
Continuing Calibration File	G9245D.S		
Method Blank File	G9246D.B		
MS/MSD File	G9250D.M		
SURROGATE LIST (spike conc)			
Dichloroethane-d4	99	(3.2)	% Rec
Toluene-d8	104	(3.2)	% Rec
Bromofluorobenzene	90	(3.2)	% Rec
TARGET COMPOUND LIST			
Acetone	ND	0.63	mg/Kg
n-Butyl alcohol	ND	63.	mg/Kg
Carbon disulfide	ND	0.31	mg/Kg
Carbon tetrachloride	ND	0.31	mg/Kg
Chlorobenzene	ND	0.31	mg/Kg
Cyclohexanone	ND	3.1	mg/Kg
1,2-Dichlorobenzene	ND	0.31	mg/Kg
Ethyl acetate	ND	0.31	mg/Kg
Ethylbenzene	1.7	0.31	mg/Kg
Ethyl ether	ND	0.31	mg/Kg
Isobutanol	ND	63.	mg/Kg
Methanol	ND	63.	mg/Kg
Methylene chloride	ND	0.31	mg/Kg
Methyl ethyl ketone	3.2	0.63	mg/Kg

TEST DESCRIPTION ANALYTE	RESULT	METHOD	DATE DET. LIMIT	ANALYST UNITS
Methyl isobutyl ketone	: ND		0.63	mg/Kg
Tetrachloroethene.....	: 0.50		0.31	mg/Kg
Toluene.....	: 3.2		0.31	mg/Kg
1,1,1-Trichloroethane.....	: 0.41		0.31	mg/Kg
1,1,2-Trichlo-	:			mg/Kg
1,2,2-Trifluoroethane...	: ND		0.31	mg/Kg
Trichloroethene.....	: ND		0.31	mg/Kg
Trichlorofluoromethane.....	: ND		0.31	mg/Kg
Xylenes	: 7.5		0.31	mg/Kg
DILUTION FACTOR 1:63				

ND - Not Detected
NA - Not Applicable
BDL - Below Detection Limit

Approved by : 

APPENDIX D

GRINDING SLUDGE TCLP ANALYSIS RESULTS (JANUARY 1989)

CERTIFICATE OF ANALYSIS

CORRESPOND TO

EMS Laboratories, Inc.
7901 West Morris Street
Indianapolis, Indiana 46231
(317) 243-8304

SAMPLE

EMS SAMPLE : 117838
REPORT DATE : 02/01/89
DATE RECEIVED : 01/25/89
DATE COMPLETE : 01/31/89

REPORT TO

CAROL BARRY
DELCO REMY
DIVISION GENERAL MOTORS
2401 COLUMBUS AVENUE
PLANT 1 ROOM 555
ANDERSON IN 46018

BILL TO

CAROL BARRY
DELCO REMY DIVISION OF GENERAL MOTORS
PLANT 1 ROOM 555
2401 COLUMBUS AVENUE
ANDERSON IN 46018

DESCRIPTION

GRINDING SLUDGE (OILY SLUDGE DEPT. 1117)
GPR-___
P.O. NUMBER : DR 249567

DATE : 01/24/89
TIME : 04:30

TEST DESCRIPTION / ANALYTE	RESULT	METHOD	DATE / DET. LIMIT	ANALYST / UNITS
TCLP VOLATILE ORGANICS, RCRA (LANDBAN CCWE)		SW846-8240	01/27/89	ACB
GC/MS File	9205D		NA	NA
Date/Time of Analysis	1/27/89 13:41			
Continuing Calibration File	G9200D.S			
Method Blank File	G9201D.B			
MS/MSD File	NA			
SURROGATE LIST (spike conc)				
Dichloroethane-d4	99		(13)	% Rec
Toluene-d8	106		(13)	% Rec
Bromofluorobenzene	97		(13)	% Rec
TARGET COMPOUND LIST				
Acetone	ND		2.5	mg/Kg
n-Butyl alcohol	ND		250.	mg/Kg
Carbon disulfide	ND		1.2	mg/Kg
Carbon tetrachloride	ND		1.2	mg/Kg
Chlorobenzene	ND		1.2	mg/Kg
Cyclohexanone	ND		12.	mg/Kg
1,2-Dichlorobenzene	ND		1.2	mg/Kg
Ethyl acetate	ND		1.2	mg/Kg
Ethylbenzene	ND		1.2	mg/Kg
Ethyl ether	ND		1.2	mg/Kg
Isobutanol	ND		250.	mg/Kg
Methanol	ND		250.	mg/Kg
Methylene chloride	ND		1.2	mg/Kg
Methyl ethyl ketone	ND		2.5	mg/Kg

TEST DESCRIPTION ANALYTE	RESULT	METHOD	DATE DET. LIMIT	ANALYST UNITS
Methyl isobutyl ketone	: ND		2.5	mg/Kg
Tetrachloroethene.....	: ND		1.2	mg/Kg
Toluene.....	: ND		1.2	mg/Kg
1,1,1-Trichloroethane.....	: 18.		1.2	mg/Kg
1,1,2-Trichlo-	:			mg/Kg
1,2,2-Trifluoroethane...	: ND		1.2	mg/Kg
Trichloroethene.....	: ND		1.2	mg/Kg
Trichlorofluoromethane.....	: ND		1.2	mg/Kg
Xylenes	: ND		1.2	mg/Kg
DILUTION FACTOR 1:250				

ND - Not Detected
NA - Not Applicable
BDL - Below Detection Limit

Approved by : _____

RCRA LAND DISPOSAL RESTRICTION INSPECTION

Facility: General Motor Corporation, Delco Remy Division

U.S. EPA I.D. No.: IND 980503825

Street: 2401 Columbus Avenue

City: Anderson State: Indiana Zip Code: 46018

Telephone: 317/646-2957

Operator: Same as above.

Street:

City: State: Zip Code:

Telephone:

Owner: Same as above.

Street:

City: State: Zip Code:

Telephone:

Inspection Date: 04/10/89 Time: 9:00 - 13:30 Weather Conditions: Sunny

	Name	Affiliation	Telephone
Inspectors:	Eddy S. Lin	PRC EMI	312/856-8700
	Michael Johnson	PRC EMI	312/856-8700

Facility Representative: Carol Barry Environmental Engineer

	RCRA Status	F-Solvent	LDR Status California List	First Third
Generator	X	X	X	X
Transporter				
Treater				
Storer	X	X		
Disposer				

INSPECTION SUMMARY

Under U.S. EPA Region 5 Work Assignment No. 316, PRC conducted a number of inspections regarding compliance with land disposal restriction (LDR) regulations concerning F-solvent wastes, the California List wastes and the first-third wastes. The effective date for restricting the disposal of the F-solvent wastes was November 8, 1986; the effective date for restricting the disposal of California List wastes is July 8, 1987; and the effective date for restricting the disposal of first-third wastes was August 8, 1988.

As part of this work assigment, PRC inspected the General Motor's Corporation's Delco Remy Division facility in Anderson, Indiana. Also, as part of the inspection, PRC investigated whether the grinding sludge generated from the grinding operations is a restricted waste.

To determine the facility's compliance, PRC used a checklist developed specifically for the LDR inspections. The inspection results for the General Motors Corporation, Delco Remy Division facility are summarized in the following paragraphs. The complete inspection checklist are also provided.

FACILITY DESCRIPTION

The Delco Remy Division is located in Anderson, Indiana. The facility manufactures and assembles electrical and electronic components for internal combustion engines. These components include distributors, alternators, starting motors, horns, switches, etc. Delco Remy has RCRA interim status for storing hazardous waste in a building north of plant 7. Delco Remy submitted a RCRA Part B permit application for its storage building to U.S. EPA on September 16, 1985.

WASTE MANAGEMENT

Hazardous wastes are generated from manufacturing and assembling electrical and electronic components. The wastes generated include ignitable waste (D001), corrosive waste (D002), cyanide plating wastes (F006, F007, F008 and F011), and spent solvents (F001, F003 and F005).

F-solvents are generated from the degreasing and cleaning operations; California List wastes and first-third wastes are generated from the electroplating operations. The majority of the wastes are drummed and stored in the storage building prior to shipment for off-site treatment or disposal. Delco Remy transports recyclable chlorinated solvents to the Safety Kleen facility in Kentucky for recycling; nonrecyclable solvents are shipped to Trade Waste Incineration

(TWI) in Sauget, Illinois for incineration; corrosive waste is transported to Heritage Environmental Services (HES) in Indianapolis, Indiana for treatment. Plating waste is treated on site and the treatment sludge (F006) is transported to HES for further treatment. Delco Remy has stopped using cyanide in the plating process.

COMPLIANCE EVALUATION

During the inspection, PRC reviewed the manifests, LDR notification forms, and waste analysis plan and applicable analysis results. PRC also inspected the container storage area during the inspection. No deficiencies were observed during this inspection.

RCRA LAND DISPOSAL RESTRICTION INSPECTION

APPLICABILITY CHECKLIST

Does the facility handle the following wastes?

		Gen.	Treat	Store	Disp.	Trans.
A.	**F-Solvent Wastes**					
1.	F001	X	___	X	___	___
2.	F002	___	___	___	___	___
3.	F003	X	___	X	___	___
4.	F004	___	___	___	___	___
5.	F005	X	___	X	___	___

Remark: Delco Remy generates spent freon, trichloroethylene, 1,1,1-trichloroethane from the degreasing operation; xylene from the print cleaning operation, and other F-solvents from lab-pack.

B. California List Wastes

1. Liquid hazardous waste (including free liquids associated with any solid or sludge) that contains the following metals at concentrations greater than or equal to those specified

		Gen.	Treat	Store	Disp.	Trans.
Arsenic	500 mg/L	___	___	___	___	___
Cadmium	100 mg/L	___	___	___	___	___
Chromium VI	500 mg/L	X	X	___	___	___
Lead	500 mg/L	___	___	___	___	___
Mercury	20 mg/L	___	___	___	___	___
Nickel	134 mg/L	X	___	___	___	___
Selenium	100 mg/L	___	___	___	___	___
Thallium	130 mg/L	___	___	___	___	___

Remark: Chromium and nickel are generated from the chrome and nickel plating operations. Chromic acid is treated at the wastewater treatment plant which is exempted from RCRA. Both operations generate small amounts of restricted waste.

2. Liquid hazardous waste (including free liquids associated with any solid or sludge) that contains free cyanides at concentrations greater than or equal to 1,000 mg/L

Gen.	Treat	Store	Disp.	Trans.
X	___	___	___	___

Remark: Cyanide plating bath solution.

3. Liquid hazardous waste that has a pH of less than or equal to 2.0

___	___	___	___	___

Remark: The process spent acid has a pH above 2. The process acid and base are treated in the wastewater treatment plant and then discharged to POTW.

4. Liquid hazardous waste that contains PCBs at concentrations greater than or equal to

50 ppm	___	___	___	___	___
500 ppm	___	___	___	___	___

Does the facility mix liquid hazardous waste that contains PCBs with other types of wastes?

___ Yes ___ No _X_ NA

If yes, state reasons for mixing:

_____

_____

5. Liquid hazardous waste that is primarily water and that contains HOCs greater than or equal to 1,000 mg/L (dilute HOC wastewater) and less than 10,000 mg/L

X	___	___	___	___

Note (1): The prohibitions of 268.32(a)(3) and (e) do not apply if the HOC waste is also subject to the solvent restrictions of 268 Subpart C or a specific HOC.

Note (2): The effective date of regulation for liquid wastes with HOCs greater than or equal to 1,000 mg/L and less than 10,000 mg/L was July 8, 1987; the effective date for liquid wastes containing HOCs greater than or equal to 10,000 mg/L and solid wastes containing HOCs greater than 1,000 mg/kg is November 8, 1988.

C. **First Third Wastes**

Note: (1) The detailed description for waste codes are listed in Appendix C.
(2) EPA has promulgated the treatment standards for the following waste codes with *:

	Gen.	Treat	Store	Disp.	Trans.
F006*	X				
F007					
F008					
F009					
F019					
K001*					
K004*					
K008*					
K011					
K013					
K014					
K015*					
K016*					
K017					
K018*					
K019*					
K020*					
K021*					
K022*					
K024*					
K025*					
K030*					
K031					
K035					
K036*					
K037*					
K044*					
K045*					
K046*					
K047*					
K048*					

	Gen.	Treat	Store	Disp.	Trans.
K049*					
K050*					
K051*					
K052*					
K060*					
K061*					
K062*					
K069*					
K071*					
K073*					
K083*					
K084					
K085					
K086*					
K087*					
K099*					
K100*					
K101*					
K102*					
K103*					
K104*					
K106*					
P001					
P004					
P005					
P010					
P011					
P012					
P015					
P016					
P018					
P020					
P030					
P036					
P037					

	Gen.	Treat	Store	Disp.	Trans.
P039					
P041					
P048					
P050					
P058					
P059					
P063					
P068					
P069					
P070					
P071					
P081					
P082					
P084					
P087					
P089					
P092					
P094					
P097					
P102					
P105					
P108					
P110					
P115					
P120					
P122					
P123					
U007					
U009					
U010					
U012					
U016					
U018					
U019					
U022					

	Gen.	Treat	Store	Disp.	Trans.
U029	___	___	___	___	___
U031	___	___	___	___	___
U036	___	___	___	___	___
U037	___	___	___	___	___
U041	___	___	___	___	___
U043	___	___	___	___	___
U044	___	___	___	___	___
U046	___	___	___	___	___
U050	___	___	___	___	___
U051	___	___	___	___	___
U053	___	___	___	___	___
U061	___	___	___	___	___
U063	___	___	___	___	___
U064	___	___	___	___	___
U066	___	___	___	___	___
U067	___	___	___	___	___
U074	___	___	___	___	___
U077	___	___	___	___	___
U078	___	___	___	___	___
U086	___	___	___	___	___
U089	___	___	___	___	___
U103	___	___	___	___	___
U105	___	___	___	___	___
U108	___	___	___	___	___
U115	___	___	___	___	___
U122	___	___	___	___	___
U124	___	___	___	___	___
U129	___	___	___	___	___
U130	___	___	___	___	___
U133	___	___	___	___	___
U134	___	___	___	___	___
U137	___	___	___	___	___
U151	___	___	___	___	___
U154	___	___	___	___	___
U155	___	___	___	___	___

	Gen.	Treat	Store	Disp.	Trans.
U157	___	___	___	___	___
U158	___	___	___	___	___
U159	___	___	___	___	___
U171	___	___	___	___	___
U177	___	___	___	___	___
U180	___	___	___	___	___
U185	___	___	___	___	___
U188	___	___	___	___	___
U192	___	___	___	___	___
U200	___	___	___	___	___
U209	___	___	___	___	___
U210	___	___	___	___	___
U211	___	___	___	___	___
U219	___	___	___	___	___
U220	___	___	___	___	___
U221	___	___	___	___	___
U223	___	___	___	___	___
U226	___	___	___	___	___
U227	___	___	___	___	___
U228	___	___	___	___	___
U237	___	___	___	___	___
U238	___	___	___	___	___
U248	___	___	___	___	___
U249	___	___	___	___	___

RCRA LAND DISPOSAL RESTRICTION INSPECTION

GENERATOR CHECKLIST

GENERATOR REQUIREMENTS

A. **BDAT Treatability Group - Treatment Standards Identification**

1. F-Solvent Wastes: Does the generator correctly determine the appropriate treatability group of the waste?

   _X_ Yes _____ No ____ NA

   If yes, check the appropriate treatability group.

   ____ Wastewaters containing solvents (less than or equal to 1% TOC by weight)
   ____ Pharmaceutical wastewater containing spent methylene chloride
   _X_ All other spent solvent wastes

2. California List Wastes: Does the generator correctly determine the appropriate treatment standard of the waste?

   a. For liquid hazardous waste that contains PCBs at concentrations greater than or equal to 50 but less 500 ppm, is the treatment in accordance with existing TSCA thermal treatment regulations for burning in high efficiency boilers (40 CFR 761.60) or incineration (40 CFR 761.70)?

      _____ Yes _____ No _X_ NA

      If yes, specify the method: _____

      Remark: Delco Remy does not generate liquid hazardous waste containing PCBs.

   b. For liquid hazardous waste that contains PCBs at concentrations greater than or equal to 500 ppm, is the waste incinerated or disposed of by other approved alternate methods (40 CFR 761. 60 (e))?

      _____ Yes _____ No _X_ NA

      If yes, specify the method and state whether the facility has submitted a written request to the Regional Administrator or Assistant Administrator for an exemption from the incineration requirement:

      Remark: Delco Remy does not generate liquid hazardous waste containing PCBs.

3. First Third Wastes: Does the generator correctly determine the appropriate treatability group of the waste?

__X__ Yes _____ No _____ NA

If yes, check the appropriate treatability group.

____ Wastewater (less than 1% TOC by weight and less than 1% filterable solids)

__X__ Nonwastewaters

List the waste code and check the correct treatment standard group.

Waste Code	Wastewater	Nonwastewater
F006		X

B. Waste Analysis

1. F-Solvent Wastes

a. Does the generator determine whether the F-solvent waste exceeds treatment standards?

__X__ Yes _____ No _____ NA

How was this determination made?

- Knowledge of waste

__X__ Yes _____ No

If yes, is any supporting data available for review? Describe how this is adequate: Delco Remy uses material safety data sheets and process information.

- TCLP

_____ Yes __X__ No

If yes, provide the date of last test, the frequency of testing, and note any problems. Attach test results.

b. Does the F-solvent waste exceed applicable treatability group treatment standards upon generation [268.7(a)(2)]?

__X__ Yes _____ No _____ NA

If yes, specify the waste stream: F001, F003, F005

c. Does the generator dilute the F-solvent waste as a substitute for adequate treatment [268.3]?

_____ Yes __X__ No _____ NA

d. How does the generator test F-solvent waste when a process or waste stream changes?
Delco Remy will contract EMS to test the waste.

2. California List Wastes

a. Does the generator determine whether the waste is a liquid according to the Paint Filter Liquids Test (PFLT method 9095) as described by SW-846?

__X__ Yes _____ No _____ NA

Remark: Delco Remy ships its F006 plating treatment sludge, which contains 30% solids, to HES. If the waste cannot pass the PFLT, HES will solidify the waste. PFLT will be conducted at HES.

b. If the waste is determined to be a liquid according to PFLT, is an absorbent added to the waste?

_____ Yes __X__ No _____ NA

What type of absorbent is used? _____

Check the types of waste to which absorbent is added.

___ Liquid hazardous waste having a pH less than or equal to 2

___ Liquid hazardous waste containing metals

___ Liquid hazardous waste containing free cyanides

Remark: The F006 plating sludge is solidified at HES.

c. Does the generator determine whether the concentration levels (not extract or filtrate) in the waste equal or exceed the prohibition levels or whether the waste has a pH of less than or equal to 2.0 based on:

- Knowledge of wastes

_____ Yes _____ No __X__ NA

If yes, is any supporting data available for review? Describe how this is adequate: _____

- Testing

__X__ Yes _____ No _____ NA

If yes, list test method used: EMS ran the waste test.

d. Does the generator determine if concentration levels in PFLT extract exceed cyanide and metals concentration levels?

__X__ Yes _____ No _____ NA

- If yes, list test method used and constituent and concentration levels that exceeded prohibition levels: F006 was tested by TCLP.

e. Does the generator dilute the waste as a substitute for adequate treatment [268.3]?

_____ Yes __X__ No _____ NA

3. First Third Wastes:

a. Does the generator correctly determine the appropriate treatment standard of the waste?

__X__ Yes _____ No _____ NA

Remark: Delco Remy determined the treatment standards for F006.

b. Does the generator determine whether the First Third waste exceeds treatment standards upon generation?

__X__ Yes _____ No __X__ Soft hammer

If yes, specify the waste streams: F006

How was this determination made?

- Knowledge of waste

__X__ Yes _____ No

If yes, is any supporting data available for review? Describe how this is adequate. _____

- TCLP

__X__ Yes _____ No _____ NA

- Total Constituent Analysis

_____ Yes _____ No __X__ NA

Provide the date of last test, the frequency of testing, and note any problems. Attach test results.

F006 treatment sludge was tested for TCLP in June 1988. The test results are attached to this report.

c. Does the generator dilute the waste as a substitute for adequate treatment [268.3]?

_____ Yes __X__ No _____ NA

d. How does the generator test the waste when a process or waste stream changes?

C. Management

1. On-Site Management

Is waste that exceeds the treatment standards treated, stored, or disposed on-site?

__X__ Yes _____ No

Remark: Delco Remy stores the F-solvent wastes on-site.

If yes, the TSD Checklist must be completed.

2. Off-Site Management

a. Does the generator ship any waste that exceeds the treatment standards to an off-site treatment or storage facility?

__X__ Yes _____ No

Remark: Delco Remy ships its restricted waste to TWI, HES, and Safety Kleen for treatment and disposal.

b. Does the generator provide notification to the treatment or storage facility [268.7(a)(1)]?

__X__ Yes _____ No

c. Does notification contain the following?

EPA Hazardous waste number(s)	__X__ Yes	_____ No
Applicable treatment standards	__X__ Yes	_____ No
Manifest number	__X__ Yes	_____ No
Waste analysis data, if available	__X__ Yes	_____ No

Identify off-site treatment or storage facilities: TWI, HES, and Safety Kleen

d. Does the generator ship any waste that meets the treatment standards to an off-site disposal facility?

_____ Yes __X__ No

e. Does the generator provide notification and certification to the disposal facility [268.7(a)(2)]?

_____ Yes _____ No __X__ NA

f. Does notification contain the following?

EPA Hazardous waste number(s)	_____ Yes	_____ No
Applicable treatment standards	_____ Yes	_____ No
Manifest number	_____ Yes	_____ No
Waste analysis data, if available	_____ Yes	_____ No
Certification that the waste meets treatment standards	_____ Yes	_____ No

Identify off-site land disposal facilities: _____

g. Is the waste subject to a nationwide variance, case by case extension (268.5), or petition (268.6)?

_____ Yes __X__ No

h. If yes, does the generator provide notification to the off-site receiving facility that the waste is not prohibited from land disposal [268.7(a)(3)]?

_____ Yes _____ No __X__ NA

i. If yes, does the notification contain the following information?

EPA hazardous waste number	_____ Yes	_____ No
The corresponding treatment standards and all applicable prohibitions	_____ Yes	_____ No
Manifest number	_____ Yes	_____ No
Waste analysis data, if available	_____ Yes	_____ No
Date the waste is subject to the prohibitions	_____ Yes	_____ No

j. Does the generator retain copies of all notices and certifications for a period of 5 years?

__X__ Yes _____ No

D. <u>Demonstration and Certification -- "Soft Hammer" Wastes</u>

a. Has the generator attempted to locate and contract with treatment and recovery facilities that provide treatment that yields the greatest environmental benefit [268.8(a)(1)]?

__X__ Yes _____ No __X__ NA

Remark: Delco Remy has not generated any soft hammer waste yet.

b. Has the generator submitted to the Regional Administration a demonstration and certification containing the following information to document its efforts to locate practically available treatment:

A list of facility and facility officials contacted?	_____ Yes	_____ No
Addresses	_____ Yes	_____ No
Telephone numbers	_____ Yes	_____ No
Contact dates	_____ Yes	_____ No

Attach a copy of the demonstration and certification

c. If the generator has determined that there is no practically available treatment for its wastes, has it sent documentation to EPA demonstrating why it was not able to obtain treatment or recovery for the waste?

_____ Yes _____ No __X__ NA

If yes, attach a copy of written discussion.

d. Does the generator ship its waste off-site for treatment?

_____ Yes _____ No __X__ NA

Describe the type of treatment and treatment facilities _____

e. Did the generator send a copy of its demonstration and certification to the receiving facility with the first shipment of waste?

_____ Yes _____ No __X__ NA

f. Does the generator provide certification with each subsequent shipment of wastes?

_____ Yes _____ No _____ NA

Remark: This is a lab pack shipment.

g. Does the generator provide the following notification to the receiving facility with each shipment of waste?

(i) EPA hazardous waste number _____ Yes _____ No

(ii) Manifest number _____ Yes _____ No

(iii) Waste analysis data, if available _____ Yes _____ No

h. Does the generator retain copies of all notices, demonstrations, and certifications for a period of 5 years?

__X__ Yes _____ No

E. **Treatment Using RCRA 264/265 Exempt Units or Processes**
(i.e., boilers, furnaces, distillation units, wastewater treatment tanks, elementary neutralization, etc.)

Are treatment residuals generated from units or processes exempt under RCRA 264/265?

__X__ Yes _____ No

If yes, list types of waste treatment units and processes:
The on-site wastewater treatment plant is discharged to POTW, therefore, is exempted from RCRA. The treatment processes consist of neutralization, separation, clarification, settling and chrome treatment.

RCRA LAND DISPOSAL RESTRICTION INSPECTION

TSD CHECKLIST

TSD REQUIREMENTS

A. General Facility Standards

1. Does the waste analysis plan cover Part 268 requirements [264.13 or 265.13]?

   - F-solvent ___X___ Yes _____ No _____ NA
   - California List ___X___ Yes _____ No _____ NA
   - First Third ___X___ Yes _____ No _____ NA

2. Does the facility obtain representative chemical and physical analyses of wastes and residues?

   ___X___ Yes _____ No

   a. What date was the waste analysis plan last revised? ___March 1989___

   b. Are analyses conducted on-site or off-site?

      _____ On-site ___X___ Off-site

      Identify off-site lab: ___EMS in Indianapolis, Indiana___

   c. Is F-solvent waste analyzed using TCLP?

      _____ Yes ___X___ No _____ NA

      Remark: Delco Remy uses knowledge to determine whether the waste exceeds the treatment standards.

   d. Is First Third waste analyzed using the analytical method that is appropriate for the objective of the specified BDAT (i.e., total constituent analysis for destruction technologies and TCLP for stabilization/fixation technologies)?

      ___X___ Yes _____ No _____ NA

      Remark: F006 was tested by TCLP

   e. Describe the frequency of sampling: ___When the process is changed or as required by the disposal facility.___

3. Are the operating records, including analyses and quantities, complete [264.73/265.73]?

__X__ Yes _____ No

B. Storage (268.50)

1. Are restricted wastes stored on-site?

__X__ Yes _____ No

If no, go to C, Treatment.

2. If yes, check the appropriate method.

___ Tanks
_X_ Containers (Four shipments per year for solvent wastes)

3. Are all containers clearly marked to identify the contents and date(s) entering storage?

__X__ Yes _____ No _____ NA

4. Do operating records track the location, quantity of the wastes, and dates that the wastes enter and leave storage?

__X__ Yes _____ No

5. Do operating records agree with container labeling?

__X__ Yes _____ No _____ NA

6. Do operating records contain copies of the notice, certification, and demonstration (if applicable) from the generator for the past 5 years?

__X__ Yes _____ No

7. Have wastes been stored for more than 1 year since the applicable LDR regulations went into effect?

_____ Yes __X__ No _____ NA

If yes, can the facility show that such accumulation is necessary to facilitate proper recovery, treatment, or disposal?

_____ Yes _____ No __X__ NA

If yes, state how: _____

8. Have tanks been emptied at least once per year since the applicable LDR regulations went into effect?

_____ Yes _____ No __X__ NA

If yes, do the operating records show that the volume of waste removed from tanks annually equals or is more than the tank volume?

_____ Yes _____ No

Remark: Delco Remy does not store restricted waste in tanks.

9. Are all tanks clearly marked with a description of the contents, the quantity of wastes received, and date(s) entering storage, or is such information recorded and maintained in the operating record?

_____ Yes _____ No __X__ NA

C. Treatment

1. Does the facility treat restricted wastes other than in surface impoundments?

__X__ Yes _____ No

If no, go to D, Treatment in Surface Impoundments.

2. Describe the treatment processes:
Delco Remy treats its electroplating waste in a on-site wastewater treatment plant which consists of neutralization, separation, clarification, settling and chrome treatment.

3. Does the facility, in accordance with an acceptable waste analysis plan, determine whether the residue from all treatment processes is less than treatment standards [268.7(b)]?

__X__ Yes _____ No

4. Is dilution used as a substitute for treatment?

_____ Yes __X__ No

5. Are notifications (if applicable) prepared by the generators kept in the facility's operating record?

__X__ Yes __X__ No

6. Does the facility ship any waste or treatment residue that meets the treatment standards to an off-site disposal facility?

_____ Yes __X__ No _____ NA

If yes, does the treatment facility provide notification and certification to the disposal facility?

_____ Yes _____ No

If yes, does notification contain the following?

EPA Hazardous waste number(s)	_____ Yes	_____ No
Applicable treatment standards	_____ Yes	_____ No
Manifest number	_____ Yes	_____ No
Waste analysis data, if available	_____ Yes	_____ No
Certification that the waste meets the treatment standards	_____ Yes	_____ No

Identify off-site disposal facilities: _____

_____

_____

7. Does the facility ship any "soft hammer" waste to an off-site disposal facility?

_____ Yes _____ No __X__ NA

If yes, does the treatment facility send a copy of the generator's demonstration (if applicable) and certification to the disposal facility?

_____ Yes _____ No __X__ NA

D. **Treatment in Surface Impoundments**

1. Are restricted wastes placed in surface impoundments for treatment?

_____ Yes _X_ No

If no, go to E, Land Disposal.

2. If yes, did the facility submit to the Agency the waste analysis plan and certification of compliance with minimum technology and ground-water monitoring requirements?

_____ Yes _____ No

3. If the minimum technology requirements have not been met, has a waiver been granted for that unit?

_____ Yes _____ No _____ NA

4. Are representative samples of the sludge and supernatant from the surface impoundment tested separately, acceptably, and in accordance with the sampling frequency and analysis specified in the waste analysis plan?

_____ Yes _____ No

Attach test results.

5. Do the hazardous waste residues (sludges or liquids) exceed the treatment standards specified in 268.41, or where no treatment standards are established for a waste, the applicable prohibition levels?

_____ Yes _____ No

6. Provide the frequency of analyses conducted on treatment residues:

_____

_____

_____

7. Does the operating record adequately document the results of waste analyses performed in accordance with 268.41?

_____ Yes _____ No

8. Do the hazardous waste residues that exceed the treatment standards (268.41) or do not meet the prohibition levels?

Sludge _____ Yes _____ No

Supernatant _____ Yes _____ No

a. If yes, are sludge and supernatant removed adequately on an annual basis?

_____ Yes _____ No

b. Are adequate precautions taken to protect liners, and do records indicate that liner integrity is inspected?

_____ Yes _____ No

c. Are residues subsequently managed in another surface impoundment?

_____ Yes _____ No

d. Are residues treated prior to disposal?

_____ Yes _____ No

If yes, are waste residues treated on-site or off-site?

_____ On-site _____ Off-site

Identify treatment method: _____

E. Land Disposal

1. Are restricted wastes placed in land disposal units such as landfills, surface impoundments, waste piles, wells, land treatment units, salt domes/beds, mines/caves, or concrete vault or bunker?

_____ Yes __X__ No

Note: Do not include surface impoundments addressed in D, Treatment in Surface Impoundments.

If yes, specify which units and what wastes each unit has received:

_____

_____

2. Are these wastes disposed of in a new, replacement, or laterally expanded landfill or impoundment that meets the minimum technology requirements (double liner and leachate collection) and ground-water monitoring?

_____ Yes _____ No

3. Does the facility operating record have notices and certifications, and demonstration (if applicable) from generators/storer/treaters for 5 years [268.7(c); 268.7(a),(b)]?

_____ Yes _____ No

4. Does the facility obtain waste analysis data or test the wastes (according to the waste analysis plan) to determine that the wastes comply with the applicable treatment standards [268.7(c)]?

_____ Yes _____ No

If yes, at what frequency? _____

_____

5. If restricted wastes that exceed the treatment standards are placed in land disposal units (excluding national capacity variances) [268.30(a)], does facility have an approved waiver based on no migration petition [268.6], an approved case-by-case capacity extension [268.5], or variance [268.44]?

_____ Yes _____ No

6. Does the facility dispose of restricted wastes that are subject to a national capacity variance?

_____ Yes _____ No

7. Does the facility have notices [268.7(a)(3)] and records of disposal for disposed wastes that are subject to a national capacity variance, case-by-case extensions [268.5], or no migration petitions [268.6]?

_____ Yes _____ No _____ NA

8. What is the volume of the restricted wastes disposed of to date?

_____

_____

9. If the facility has a case-by-case extension, is the facility making progress as described in progress reports?

_____ Yes _____ No _____ NA

ATTACHMENT

TCLP TEST RESULTS FOR THE PLATING SLUDGE

CERTIFICATE OF ANALYSIS

CORRESPOND TO

EMS Laboratories, Inc.
7901 West Morris Street
Indianapolis, Indiana 46231
(317) 243-8304

SAMPLE

EMS SAMPLE : 104064
REPORT DATE : 06/30/88
DATE RECEIVED : 06/06/88
DATE COMPLETE : 06/29/88

REPORT TO

CAROL BARRY
DELCO REMY
DIVISION GENERAL MOTORS
2401 COLUMBUS AVENUE
ANDERSON IN 46018

BILL TO

CAROL BARRY
DELCO REMY DIVISION
OF GENERAL MOTORS
2401 COLUMBUS AVENUE
ANDERSON IN 46018

DESCRIPTION

CLARIFIER SLUDGE
GPR-0301389001
P.O. NUMBER : 301389

DATE : 6/6/88
TIME : 9:00 AM

TEST DESCRIPTION / ANALYTE	RESULT	METHOD	DATE / DET. LIMIT	ANALYST / UNITS
CYANIDE, TOTAL		SW846-9012	06/08/88	JWH
CYANIDE, TOTAL	: 5.0		2.5	MG/KG
CYANIDE, TOTAL AMENABLE TO CHLORINATION		SW846-9012	06/13/88	JWH
CYANIDE, T. AMENABLE	: 5.0		2.5	MG/KG
ANTIMONY, LEACHATE		SW846-7040	06/14/88	HHW
ANTIMONY, LEACHATE	: ND		0.20	MG/L
INSTRUMENT	: IL S12 FAA			
ADDITION 1 (MG/L)	: 2.0			
ADDITION 2 (MG/L)	: 5.0			
ADDITION 3 (MG/L)	: 10.0			
SAMPLE ABS	: ND			
SAMPLE + ADD 1 ABS	: 0.041			
SAMPLE + ADD 2 ABS	: 0.107			
SAMPLE + ADD 3 ABS	: 0.239			
DILUTION	: NA			
ARSENIC, LEACHATE		SW846-7060	06/14/88	SON
ARSENIC, LEACHATE	: ND		0.50	MG/L
INSTRUMENT	: PE 5100 GFAA			
ADDITION 1 (MG/L)	: 0.010			
ADDITION 2 (MG/L)	: 0.020			
ADDITION 3 (MG/L)	: 0.040			
SAMPLE (ABS)	: ND			
SAMPLE + ADD 1 (ABS)	: 0.044			
SAMPLE + ADD 2 (ABS)	: 0.094			

TEST DESCRIPTION / ANALYTE	RESULT	METHOD	DATE / DET. LIMIT	ANALYST / UNITS
SAMPLE + ADD 3 (ABS)	: 0.183			
DILUTION	: 1:50			
BARIUM, LEACHATE		SW846-7080	06/12/88	HHW
BARIUM, LEACHATE ...	: 1.1		0.20	MG/L
INSTRUMENT	: IL S12 FAA			
ADDITION 1 (MG/L) ..	: 1.0			
ADDITION 2 (MG/L) ..	: 2.5			
ADDITION 3 (MG/L) ..	: 5.0			
SAMPLE ABS	: 0.023			
SAMPLE + ADD 1 ABS	: 0.041			
SAMPLE + ADD 2 ABS	: 0.078			
SAMPLE + ADD 3 ABS	: 0.123			
DILUTION	: NA			
CADMIUM, LEACHATE		SW846-7130	06/13/88	HHW
CADMIUM, LEACHATE ..	: ND		0.020	MG/L
INSTRUMENT	: IL S12 FAA			
ADDITION 1 (MG/L) ..	: 0.20			
ADDITION 2 (MG/L) ..	: 0.50			
ADDITION 3 (MG/L) ..	: 1.00			
SAMPLE ABS	: ND			
SAMPLE + ADD 1 ABS	: 0.089			
SAMPLE + ADD 2 ABS	: 0.224			
SAMPLE + ADD 3 ABS	: 0.457			
DILUTION	: NA			
CHROMIUM, LEACHATE		SW846-7190	06/13/88	HHW
CHROMIUM, LEACHATE .	: ND		0.050	MG/L
INSTRUMENT	: IL S12 FAA			
ADDITION 1 (MG/L) ..	: 0.40			
ADDITION 2 (MG/L) ..	: 1.00			
ADDITION 3 (MG/L) ..	: 2.00			
SAMPLE ABS	: ND			
SAMPLE + ADD 1 ABS	: 0.022			
SAMPLE + ADD 2 ABS	: 0.060			
SAMPLE + ADD 3 ABS	: 0.118			
DILUTION	: NA			
COPPER, LEACHATE		SW846-7210	06/13/88	HHW
COPPER, LEACHATE ...	: ND		0.050	MG/L
INSTRUMENT	: IL S12 FAA			
ADDITION 1 (MG/L) ..	: 0.20			
ADDITION 2 (MG/L) ..	: 0.50			
ADDITION 3 (MG/L) ..	: 1.00			
SAMPLE ABS	: 0.004			
SAMPLE + ADD 1 ABS	: 0.030			
SAMPLE + ADD 2 ABS	: 0.069			
SAMPLE + ADD 3 ABS	: 0.136			
DILUTION	: NA			

TEST DESCRIPTION / ANALYTE	RESULT	METHOD	DATE / DET. LIMIT	ANALYST / UNITS
LEAD, LEACHATE		SW846-7420	06/13/88	HHW
LEAD, LEACHATE	ND		0.20	MG/L
INSTRUMENT	IL S12 FAA			
ADDITION 1 (MG/L)	2.0			
ADDITION 2 (MG/L)	5.0			
ADDITION 3 (MG/L)	10.0			
SAMPLE ABS	ND			
SAMPLE + ADD 1 ABS	0.099			
SAMPLE + ADD 2 ABS	0.248			
SAMPLE + ADD 3 ABS	0.506			
DILUTION	NA			
NICKEL, LEACHATE		SW846-7520	06/13/88	HHW
NICKEL, LEACHATE	0.48		0.070	MG/L
INSTRUMENT	IL S12 FAA			
ADDITION 1 (MG/L)	0.20			
ADDITION 2 (MG/L)	0.50			
ADDITION 3 (MG/L)	1.00			
SAMPLE ABS	0.035			
SAMPLE + ADD 1 ABS	0.048			
SAMPLE + ADD 2 ABS	0.071			
SAMPLE + ADD 3 ABS	0.106			
DILUTION	NA			
SELENIUM, LEACHATE		SW846-7740	06/14/88	SON
SELENIUM, LEACHATE	ND		0.25	MG/L
INSTRUMENT	PE 5100 GFAA			
ADDITION 1 (MG/L)	0.010			
ADDITION 2 (MG/L)	0.020			
ADDITION 3 (MG/L)	0.040			
SAMPLE (ABS)	0.010			
SAMPLE + ADD 1 (ABS)	0.033			
SAMPLE + ADD 2 (ABS)	0.061			
SAMPLE + ADD 3 (ABS)	0.114			
DILUTION	1:50			
SILVER, LEACHATE		SW846-7760	06/14/88	HHW
SILVER, LEACHATE	ND		0.040	MG/L
INSTRUMENT	IL S12 FAA			
ADDITION 1 (MG/L)	0.20			
ADDITION 2 (MG/L)	0.50			
ADDITION 3 (MG/L)	1.00			
SAMPLE ABS	ND			
SAMPLE + ADD 1 ABS	0.040			
SAMPLE + ADD 2 ABS	0.090			
SAMPLE + ADD 3 ABS	0.186			
DILUTION	NA			
ZINC, LEACHATE		SW846-7950	06/13/88	HHW

TEST DESCRIPTION / ANALYTE	RESULT	METHOD	DATE / DET. LIMIT	ANALYST / UNITS
ZINC, LEACHATE	: 0.37		0.050	MG/L
INSTRUMENT	: IL S12 FAA			
ADDITION 1 (MG/L) ..	: 0.20			
ADDITION 2 (MG/L) ..	: 0.50			
ADDITION 3 (MG/L) ..	: 1.00			
SAMPLE ABS	: 0.273			
SAMPLE + ADD 1 ABS	: 0.393			
SAMPLE + ADD 2 ABS	: 0.604			
SAMPLE + ADD 3 ABS	: 0.970			
DILUTION	: NA			
TCLP EXTRACTION		SW846-1311	06/07/88	DSH
TCLP EXTRACTION	: COMPLETE		NA	NA
TOT. SAMPLE WT., G .	: 100			
LIQUID FRACTION, G .	: 0			
LIQUID FRACTION, ML.	: 0			
9.5 mm SIEVE TEST ..	: PASSED			
> 0.5 PERCENT SOLIDS	: YES			
INITIAL PH, STD UNIT	: 12.4			
ADJUSTED PH	: 8.7			
BUFFER SOLUTION PH .	: 2.84			
EXT. SAMPLE, G	: 100			
VOL. BUFFER SOLN, ML	: 2000			
VOL. EXT. FILT., ML.	: 2000			
TOT. VOL. FILT., ML.	: 2000			
INITIAL TIME, HRS ..	: 2598.7			
FINAL TIME, HRS	: 2616.7			
ACID DIGESTION OF LEACHATE FOR FAA OR ICP		SW846-3010	06/07/88	SON
METALS DIGESTION ...	: COMPLETE		NA	ML
INITIAL VOL, ML	: 100			
FINAL VOL, ML	: 100			
ACID DIGESTION OF LEACHATE FOR GFAA		SW846-3020	06/07/88	SON
METALS DIGESTION ...	: COMPLETE		NA	ML
INITIAL VOL, ML	: 100			
FINAL VOL, ML	: 100			

ND - Not Detected
NA - Not Applicable

Approved by : D L Peterson

AUG 7 1989

5HR-12

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Homi Patel, General Manager
GMC Delco Remy
2401 Columbus Avenue
Anderson, Indiana 46018

Re: Land Ban Inspection
GMC Delco Remy
IND 980 503 940

Dear Mr. Patel:

On April 10, 1989, PRC Environmental Management, Inc. representing the United States Environmental Protection Agency (U.S. EPA), conducted a Resource Conservation and Recovery Act (RCRA) inspection of the above-referenced facility. The purpose of the inspection was to determine the compliance status of your facility with respect to the applicable hazardous waste management requirements of Federal land disposal restrictions. The land disposal restrictions for F001-F005 waste solvents became effective on November 8, 1986,(reference 51 Federal Register 40636: revisions to 40 CFR Parts 260-265, 268, and 270 271); for "California List" hazardous waste on July 8, 1987, (referenced 52 Federal Register 25760: revisions to 40 CFR Parts 262, 264, 265, 268, and 270-271); and for "First Third Scheduled Wastes" on August 17, 1988, (reference 53 Federal Register 31138: revisions to 40 CFR Parts 264, 265, 266, 268, and 271).

Based upon the results of this inspection it has been determined that your facility is currently in compliance with the land disposal restrictions of RCRA.

If you have any questions regarding this matter, please contact Daniel Bakk of my staff at (312) 886-3781.

Sincerely yours,

Joseph M. Boyle, Chief
IL/IN Technical Enforcement Section

cc: Dennis Zawodni, IDEM
(with copy of inspection report)

5HR-12:Bakk:lr:7/31/89:#45

	TYP.	AUTH.	IL/IN TECH. ENF. SEC.	MI/WI TECH. ENF. SEC.	OH/MN TECH. ENF. SEC.	IL/MI/WI ENF. PROG. SECTION	IN/MN/OH ENF. PROG. SECTION	RCRA ENF. BR. CHIEF	O. R. A.D.D.	WMD DIR
INIT.										
DATE	8/1/89	8/7	8/7/89							

AUG 7 1989

5HR-12

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Carol Barry, Environmental Engineer
GMC Delco Remy
2401 Columbus Avenue
Anderson, Indiana 46018

Re: Land Ban Inspection
GMC Delco Remy
IND 980 503 940

Dear Ms. Barry:

On April 10, 1989, PRC Environmental Management, Inc. representing the United States Environmental Protection Agency (U.S. EPA), conducted a Resource Conservation and Recovery Act (RCRA) inspection of the above-referenced facility. The purpose of the inspection was to determine the compliance status of your facility with respect to the applicable hazardous waste management requirements of Federal land disposal restrictions. The land disposal restrictions for F001-F005 waste solvents became effective on November 8, 1986,(reference 51 Federal Register 40636: revisions to 40 CFR Parts 260-265, 268, and 270 271); for "California List" hazardous waste on July 8, 1987, (referenced 52 Federal Register 25760: revisions to 40 CFR Parts 262, 264, 265, 268, and 270-271); and for "First Third Scheduled Wastes" on August 17, 1988, (reference 53 Federal Register 31138: revisions to 40 CFR Parts 264, 265, 266, 268, and 271).

Based upon the results of this inspection it has been determined that your facility is currently in compliance with the land disposal restrictions of RCRA.

If you have any questions regarding this matter, please contact Daniel Bakk of my staff at (312) 886-3781.

Sincerely yours,

Joseph M. Boyle, Chief
IL/IN Technical Enforcement Section

cc: Dennis Zawodni, IDEM
(with copy of inspection report)

	TYP.	AUTH.	IL/IN TECH. ENF. SEC.	MI/WI TECH. ENF. SEC.	OH/MN TECH. ENF. SEC.	IL/MI/WI ENF. PROG. SECTION	IN/MN/OH ENF. PROG. SECTION	RCRA ENF. BR. CHIEF	O. R. A.D.D.	WMD DIR
INIT. DATE		PB 8/7	JMB 8/7/89							

SENDER: Complete items 1 and 2 when additional services are desired, and complete items 3 and 4.

Put your address in the "RETURN TO" Space on the reverse side. Failure to do this will prevent this card from being returned to you. The return receipt fee will provide you the name of the person delivered to and the date of delivery. For additional fees the following services are available. Consult postmaster for fees and check box(es) for additional service(s) requested.

1. ☒ Show to whom delivered, date, and addressee's address. *(Extra charge)*
2. ☐ Restricted Delivery *(Extra charge)*

3. Article Addressed to:

Homi Patel, General Manager
GMC Delco Remy
2401 Columbus Avenue
Anderson, Indiana 46018

4. Article Number

P 256 147 007

Type of Service:

☐ Registered ☐ Insured
☒ Certified ☐ COD
☐ Express Mail ☐ Return Receipt for Merchandise

Always obtain signature of addressee or agent and DATE DELIVERED.

5. Signature — Address

X

6. Signature — Agent

X

7. Date of Delivery

AUG 9 1989

8. Addressee's Address *(ONLY if requested and fee paid)*

PO Box 2439
And., In. 46018

PS Form **3811**, Mar. 1988 ★ U.S.G.P.O. 1988-212-865 **DOMESTIC RETURN RECEIPT**

SENDER: Complete items 1 and 2 when additional services are desired, and complete items 3 and 4.

Put your address in the "RETURN TO" Space on the reverse side. Failure to do this will prevent this card from being returned to you. The return receipt fee will provide you the name of the person delivered to and the date of delivery. For additional fees the following services are available. Consult postmaster for fees and check box(es) for additional service(s) requested.

1. ☒ Show to whom delivered, date, and addressee's address. *(Extra charge)*
2. ☐ Restricted Delivery *(Extra charge)*

3. Article Addressed to:

Carol Barry, Environmental Engineer
GMC Delco Remy
2401 Columbus Avenue
Anderson, Indiana 46018

4. Article Number

P 256 147 008

Type of Service:

☐ Registered ☐ Insured
☒ Certified ☐ COD
☐ Express Mail ☐ Return Receipt for Merchandise

Always obtain signature of addressee or agent and DATE DELIVERED.

5. Signature — Address

X

6. Signature — Agent

X

7. Date of Delivery

AUG 9 1989

8. Addressee's Address *(ONLY if requested and fee paid)*

POB 2439
And., In. 46018

PS Form **3811**, Mar. 1988 ★ U.S.G.P.O. 1988-212-865 **DOMESTIC RETURN RECEIPT**

UNITED STATES POSTAL SERVICE

OFFICIAL BUSINESS

SENDER INSTRUCTIONS

Print your name, address and ZIP Code in the space below.

- Complete items 1, 2, 3, and 4 on the reverse.
- Attach to front of article if space permits, otherwise affix to back of article.
- Endorse article "Return Receipt Requested" adjacent to number.

HR-12

U.S.MAIL

PENALTY FOR PRIVATE USE, $300

RETURN TO

Print Sender's name, address, and ZIP Code in the space below.

Daniel Bakk 5HR-12

U.S. ENVIRONMENTAL PRO. AGENCY
REGION V
230 SOUTH DEARBORN
CHICAGO IL 60604

UNITED STATES POSTAL SERVICE

OFFICIAL BUSINESS

SENDER INSTRUCTIONS

Print your name, address and ZIP Code in the space below.

- Complete items 1, 2, 3, and 4 on the reverse.
- Attach to front of article if space permits, otherwise affix to back of article.
- Endorse article "Return Receipt Requested" adjacent to number.

U.S.MAIL

PENALTY FOR PRIVATE USE, $300

RETURN TO

Print Sender's name, address, and ZIP Code in the space below.

Dan Bakk 5HR-12

U.S. ENVIRONMENTAL PRO. AGENCY
REGION V
230 SOUTH DEARBORN
CHICAGO IL 60604

D. Bakk:5HR-12:USEPA:230 S. Dearborn: Chgo, IL. 60604

P 256 147 007

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED
NOT FOR INTERNATIONAL MAIL
(See Reverse)

Sent to Homi Patel, General Manager
GMC Delco Remy
Street and No. 2401 Columbus Avenue
P.O., State and ZIP Code Anderson, Indiana 46018

Postage	$ 25
Certified Fee	75
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt showing to whom and Date Delivered	90
Return Receipt showing to whom, Date, and Address of Delivery	
TOTAL Postage and Fees	$ 2.00
Postmark or Date	

PS Form 3800, June 1985 * U.S.G.P.O. 1985-480-794

5HR-12

FEB 13 1989

Thomas Linson, Acting Chief
Hazardous Waste Management Branch
Indiana Department of
  Environmental Management
105 South Meridian Street
P.O. Box 6015
Indianapolis, Indiana 46206-6015

Re: GMC Delco Remy
IND 980 503 840

Dear Mr. Linson:

In response to Mr. Russell's letter of December 6, 1988, this office has made arrangements to have a contractor inspect the GMC Delco Remy, Anderson, Indiana plant. The inspection will include an LDR checklist with emphasis on characterizing the oily sludge waste which is generated by the parts cleaning operation. With more detailed information we can determine whether or not this is a hazardous waste.

The discussion about "de minimis" contamination of this waste in your letter cites a regulation which specifically addresses contamination of materials discharged to waste water streams, not solid waste. We cannot accept your position that an inspection is not warranted. We feel an investigation of the regulatory status of this oily sludge waste is essential.

We will inform you of the results of our inspection and discuss any questions you may have on this matter.

Sincerely yours,

ORIGINAL SIGNED BY
WILLIAM E. MUNO

William E. Muno, Chief
RCRA Enforcement Branch

5HR-12:Dan:lr:1/11/89#45

5HR-12

FEB 13 1989

Thomas Linson, Acting Chief
Hazardous Waste Management Branch
Indiana Department of
Environmental Management
105 South Meridian Street
P.O. Box 6015
Indianapolis, Indiana 46206-6015

Re: GMC Delco Remy
IND 980 503 940

Dear Mr. Linson:

In response to Mr. Russell's letter of December 6, 1988, this office has made arrangements to have a contractor inspect the GMC Delco Remy, Anderson, Indiana plant. The inspection will include an LDR checklist with emphasis on characterizing the oily sludge waste which is generated by the parts cleaning operation. With more detailed information we can determine whether or not this is a hazardous waste.

The discussion about "de minimis" contamination of this waste in your letter cites a regulation which specifically addresses contamination of materials discharged to waste water streams, not solid waste. We cannot accept your position that an inspection is not warranted. We feel an investigation of the regulatory status of this oily sludge waste is essential.

We will inform you of the results of our inspection and discuss any questions you may have on this matter.

Sincerely yours,

ORIGINAL SIGNED BY
WILLIAM E. MUNO

William E. Muno, Chief
RCRA Enforcement Branch

5HR-12:Dan:lr:1/11/89#45

ap 2/13/89

	TYP.	AUTH.	IL/IN TECH. ENF. SEC.	M/C TECH. ENF. SEC.	WI/MN TECH. ENF. SEC.	IL/IN/WI ENF. PROG. SECTION	TSA PROG. SECTION	RCRA BR. CHIEF	O.R. A.D.U.	MD DIR
INIT. DATE	2/13/89	2/13	RAF for mB 2/13/89					WEM 2/13/89		

Delco Remy

Division of General Motors Corporation 2401 Columbus Avenue P.O. Box 2439 Anderson, Indiana 46018-9986

February 1, 1989
CERTIFIED MAIL 4465

Mr. David Bakk
U.S. EPA Region 5
230 South Dearborn St.
Chicago, IL 60604

Dear Mr. Bakk:

I appreciate you sending me a copy of the RCRA/Superfund Industry Assistance Hotline Report for April 1987. In the report, we discussed the second question (Page 3), SOLVENT DRIPPINGS FROM DEGREASING OPERATIONS. The issue raised in the report was whether the grinding sand and metal flakes with traces of the 1,1,1 trichloroethane should be considered a hazardous waste. The response in the report stated "The small amount of solvent remaining on the part after it has been dipped will not be regulated as F001. If the sand-metal solvent mixture exhibits any of the characteristics of hazardous waste as defined in Subpart C of 40 CFR Part 261, then the mixture would be regulated as a hazardous waste". As we discussed, Subpart C of 40 CFR Part 261 defines a characteristic hazardous waste as one which exhibits any one of the following:

40 CFR 261.21 Characteristic of Ignitability

40 CFR 261.22 Characteristic of Corrosivity

40 CFR 261.23 Characteristic of Reactivity

40 CFR 261.24 characteristic of EP Toxicity

We agreed that if the waste did not exhibit the characteristics of Subpart C 40 CFR 261 then the traces of the solvent alone would not make the waste hazardous. In other words, a waste may have solvents which exceed the levels in 40 CFR 268.41 (Table CCWE) but the amount is deminimus such that the waste should not be considered hazardous.

We also discussed a situation which was similar to the manufacturer in the RCRA/Superfund report. At our facility, there are several grinding operations. Parts which have oil on their outer covering go through a grinding operation. A grinding sludge is generated which is comprised of dirt, metal chips and a small amount of oil. In addition, the operator may use 1,1,1 trichloroethane to degrease the grinding tool. A majority of the 1,1,1 trichloroethane evaporates. However,

traces of the 1,1,1 trichloroethane may inadvertently mix with the sludge.

From our discussion of this matter, we agreed that this situation was indistinguishable from the situation in the report. As a result, the grinding sludge which may have traces of solvents would not be considered hazardous unless it exhibited the characteristics of a hazardous waste of Subpart C of 40 CFR 261.

If any of the above statements listed in this letter are incorrect, please notify me immediately. I can be reached on (317)646-2957.

Sincerely,

Carol Barry

Carol Barry
Environmental Engineer

CB:bs

STATE of INDIANA

DEPARTMENT OF
ENVIRONMENTAL MANAGEMENT

INDIANAPOLIS, 46225

105 South Meridian Street

DEC 02 1986

RECEIVED
DEC 5 - 1986
U.S. EPA, REGION V
WASTE MANAGEMENT DIVISION
HAZARDOUS WASTE ENFORCEMENT BRANCH

Ms. Carol Barry, Environmental Engineer
General Motors Corporation
Delco Remy
2401 Columbus Avenue
Anderson, IN 46018

Re: Hazardous Waste Management
G/TSD Inspection
General Motors Corporation, Delco Remy
IND 980503940
Letter of Warning (L-146)

Dear Ms. Barry:

Representatives of the Department of Environmental Management are conducting inspections of facilities in Indiana that are engaged in the generation, transportation, treatment, storage, or disposal of hazardous waste. Facilities are being inspected to determine compliance with the Environmental Management Act and 320 IAC 4.1, "Hazardous Waste Management Permit Program and Related Hazardous Waste Management Requirements." These inspections and record reviews are also being conducted pursuant to the requirements of the Resource Conservation and Recovery Act (RCRA), Public Law 94-580, as amended, for authorized state hazardous waste management programs.

This letter is to inform you that on August 7,1986, an inspection of General Motors Corporation, Delco Remy, located at 2401 Columbus Avenue, Anderson, Indiana, was conducted by Messrs. Jeff Blankenberger and Ron Weiss of the Office of Solid and Hazardous Waste Management, Department of Environmental Management. You represented your firm at this inspection.

At the time of the inspection, the following concern pertaining to the operation of your facility was noted:

1. 320 IAC 4.1-7-2 Owner/operator had not determined if waste is hazardous. The inspectors noted that the owner/operator had not determined if the facility's foundry solid waste was hazardous waste.

Based upon documents submitted to this office from your facility on September 19, 1986, it has been determined that General Motors Corporation, Delco Remy has complied with 320 IAC 4.1-7-2, by making a waste determination of the facility's foundry solid waste. A record review of those documents, conducted by this office on October 30, 1986, indicate that the foundry solid waste is not a hazardous waste and is not subject to regulation under RCRA or 320 IAC 4.1; therefore, a response to this Letter of Warning is not necessary.

Thank you for your cooperation. If you have any questions concerning this matter, feel free to contact Mr. Rod Steele of the Office of Solid and Hazardous Waste Management at AC 317/232-3405.

Very truly yours,

Thomas Russell

Thomas Russell, Chief
Enforcement Section
Hazardous Waste Management Branch
Solid and Hazardous Waste Management

RJS/drc
cc: Madison County Health Department
Ms. Sally K. Swanson, U.S. EPA, Region V
Mr. Jeff Blankenberger
Mr. Ron Weiss

STATE OF INDIANA

INDIANAPOLIS

STATE BOARD OF HEALTH

AN EQUAL OPPORTUNITY EMPLOYER

Address Reply to:
Indiana State Board of Health
1330 West Michigan Street
P. O. Box 1964
Indianapolis, IN 46206-1964

December 12, 1985

IND 980 503 940

Ms. Carol F. Barry
Environmental Engineer
GMC Delco Remy
2401 Columbus Avenue
P.O. Box 2439
Anderson, IN 46018-9986

Dear Ms. Barry:

Re: Request for Using In-House Manifest for Hazardous Waste Shipments Between the Columbus Avenue Area and the Acre Area Facilities

Please be advised that the Hazardous Waste Management Branch of the Division of Land Pollution Control (Division) has received your request for using your facility's own manifest form when transporting hazardous waste from the Columbus Avenue Area facility to the Acre Area facility.

Staff has reviewed your request and has indicated that it is imperative that your facility use uniform manifests for all shipments of hazardous waste as required by the Indiana Hazardous Waste Management Program, IC 13-7, and 320 IAC 4.1.

As you know, IC 13-7-8.5-7 has been recently amended to require all facilities in Indiana that are engaged in the generation, treatment, storage, or disposal of hazardous waste to submit copies of their manifests to the Division starting January 1, 1986. Because the Division will be assimilating and storing all incoming manifest information by using a computerized tracking system, it is necessary that all manifest forms be identical for efficient and consistent computer entry.

If you have any questions, please call Mr. Rod Steele of this Division at AC 317/243-5050.

Very truly yours,

Guinn Doyle

Guinn Doyle, Chief
Hazardous Waste Management Branch
Division of Land Pollution Control

RJS/tr
cc: Mr. Richard Strong
Mr. Jeff Blankenberger
Ms. Sally K. Swanson, U.S. EPA, Region V

STATE of INDIANA

ENVIRONMENTAL MANAGEMENT BOARD

INDIANAPOLIS 46206–1964

1330 West Michigan Street
P. O. Box 1964

OCT 0 7 1985

VIA CERTIFIED MAIL

IND 980 350 3940

Mr. James F. McDonald, President
General Motors Corporation
3044 General Motors Boulevard
Detroit, MI 48202

Dear Mr. McDonald:

(WDS IIYT 1900 11 015

Re: Delco Remy
Division of General Motors Corporation
Cause No. N-235

This is to inform you that the Indiana Environmental Management Board, at its regularly scheduled meeting of September 20, 1985, approved the Recommended Agreed Order negotiated between you or your representatives and members of our staff. A copy of the Final Order, executed by me as Technical Secretary on behalf of the Board, is enclosed.

You are, no doubt, familiar with the terms of the Final Order necessary to ensure future compliance. As to civil penalties provided for in the document, please forward a check, made payable to the Environmental Management Special Fund, to this office within thirty (30) days of the receipt of this correspondence.

Very truly yours,

Ralph C. Pickard
Technical Secretary

RJS/tr
Enclosure
cc: Madison County Health Department (with enclosure)
Ms. Ann Scholl Long, Deputy Attorney General (with enclosure)
Ms. Sally K. Swanson, U.S. EPA, Region V (with enclosure)
Ms. LoVeen J. Moody, General Motors Corporation (with enclosure)
Mr. James E. Thompson, Delco Remy
Mr. Leland G. Robinson, Delco Remy
Mr. Verl Myers
Woodrow A. Myers, Jr., M.D.
Ms. Carol Barry, Delco Remy, (with enclosure)

STATE OF INDIANA

ENVIRONMENTAL MANAGEMENT BOARD

INDIANAPOLIS 46206–1964

1330 West Michigan Street
P. O. Box 1964

STATE OF INDIANA	)	BEFORE THE ENVIRONMENTAL MANAGEMENT
	) SS:	
COUNTY OF MARION	)	BOARD OF THE STATE OF INDIANA

IN THE MATTER OF THE:

ENVIRONMENTAL MANAGEMENT BOARD OF THE STATE OF INDIANA	)	
Complainant	)	
vs.	)	CAUSE NO. N-235
DELCO REMY DIVISION OF GENERAL MOTORS CORPORATION	)	
Respondent	)	

AGREED ORDER

Come now the parties to this cause and, being desirous of settling and compromising this action without hearing or adjudication of any issue of fact or law, hereby consent to the following Findings and Order.

AGREED FINDINGS OF FACT

NOW, THEREFORE, upon the consent of the parties hereto, and for the purposes of this cause only, the following FINDINGS are made:

1. The Complainant is the Environmental Management Board of the State of Indiana (hereinafter referred to as "Board"), an agency of the State of Indiana duly empowered pursuant to IC 13-7 and the rules duly promulgated thereunder to determine whether or not there is a violation of such laws or rules and to issue Orders with respect thereto as it deems proper.

2. Respondent is a Company authorized to do business in Indiana and operates a place of business at 2401 Columbus Avenue, Anderson, Indiana.

3. The Board has jurisdiction over both the subject matter and the parties to this action.

4. Pursuant to IC 13-7-11 and IC 4-22-1-6, Complaint and Notice of Hearing was served upon:

Mr. James F. McDonald, President General Motors Corporation 3044 General Motors Boulevard Detroit, Michigan 48202	CT Corporation Resident Agent for General Motors Corporation One North Capitol Avenue Indianapolis, Indiana 46204

5. Based upon an investigation of the facility by the Division of Land Pollution Control of the Indiana State Board of Health (hereinafter referred to as "Division"), it was determined that the Respondent is in violation of the Indiana Hazardous Waste Management Program, IC 13-7-8.5, and 320 IAC 4.

6. Based upon the above-mentioned investigation, the following violations were found:

   a. Pursuant to IC 13-7-4-1(a), no person shall:

      Discharge, emit, cause, allow, or threaten to discharge, emit, cause, or allow any contaminant or waste, including any noxious odor, either alone or in combination with contaminants from other sources, into the environment or into any publicly owned treatment works in any form which causes or would cause pollution which violates or would violate regulations, standards, or discharge or emission requirements adopted by the Board or the appropriate agency pursuant to this article.

      Based on information gathered by the Division, Respondent did:

      Discharge, emit, cause, allow, or threaten to discharge, emit, cause, or allow any contaminant or waste, including any noxious odor, either alone or in combination with contaminants from other sources, into the environment or into any publicly owned treatment works in any form which causes or would cause pollution which violates or would violate regulations, standards, or discharge or emission requirements adopted by the Board or the appropriate agency pursuant to this article. By allowing an untreated calcium oxide waste to be transported and disposed of at the Grant County Landfill, the Respondent allowed a reactive hazardous waste to be discharged into the environment. The waste was mixed with general refuse and reacted with moisture in the landfill causing a fire. This constitutes a violation of 40 CFR 265.31 as adopted by 320 IAC 4-6.

b. Pursuant to 320 IAC 4-4 (40 CFR 262.11), a person who generates a solid waste must determine if that waste is a hazardous waste. Based upon information gathered by the Division, Respondent did not determine if the solid waste (calcium oxide) was a hazardous waste.

c. Pursuant to 320 IAC 4-4 (40 CFR 262.20(a)), a generator who offers a hazardous waste for transportation or disposal must prepare a manifest before transporting the waste off-site. Based upon evidence gathered by the Division, Respondent did not manifest a hazardous waste (calcium oxide) prior to transportation.

d. Pursuant to 320 IAC 4-4 (40 CFR 262.30), a generator must package a hazardous waste in accordance with applicable Department of Transportation regulations before offering the hazardous waste for transportation. Based on information gathered by the Division, Respondent did not properly package a hazardous waste (calcium oxide) prior to transportation.

e. Pursuant to 320 IAC 4-4 (40 CFR 262.32), a generator must mark each package of hazardous waste in accordance with the applicable Department of Transportation regulations before offering the hazardous waste for transportation. Based on information gathered by the Division, Respondent did not mark a package of hazardous waste (calcium oxide) prior to transportation.

f. Pursuant to 320 IAC 4-6 (40 CFR 265.16(d)), the owner or operator shall maintain personnel training records. Based on information gathered by the Division, Respondent has not maintained a list of job titles for all positions at the facility related to hazardous waste management, names of all employees filling each position related to hazardous waste management and documentation reflecting that personnel assigned to new hazardous waste management positions at the facility have received training within six (6) months of their transfer or employment.

g. Pursuant to 320 IAC 4-6 (40 CFR 265.52(f)), the Contingency Plan shall include an evacuation plan for facility personnel. Based on information gathered by the Division, Respondent has not included an evacuation plan for facility personnel in the Contingency Plan which describes the signal(s) to be used to begin evacuation and the primary and alternative routes to be used during an evacuation.

h. Pursuant to 320 IAC 4-6 (40 CFR 265.14(c)), danger sign(s) shall be posted at each entrance to the active portion(s) of the facility. Based on information gathered by the Division, Respondent did not have danger sign(s) posted at each entrance to the hazardous waste drum storage area.

i. Pursuant to 320 IAC 4-6 (40 CFR 265.17(a)), the owner or operator shall post "No Smoking" signs on premises where required. Based on information gathered by the Division, Respondent did not have "No Smoking" signs posted at the hazardous waste drum storage area.

j. Pursuant to 320 IAC 4-4 (40 CFR 262.34(a)(2)), containers shall be marked with the start of accumulation date. Based on information gathered by the Division, Respondent has not marked the accumulation date on the wastewater treatment plant hazardous waste container(s).

k. Pursuant to 320 IAC 4-4 (40 CFR 262.34(a)(3)), containers shall be marked with the words "Hazardous Waste." Based on information gathered by the Division, Respondent has not marked the wastewater treatment plant hazardous waste container(s) with the words "Hazardous Waste".

7. During the June 10, 1985, prehearing conference, Respondent stated that the following corrective actions have been completed:

a. Respondent has now posted danger signs at each entrance to the hazardous waste drum storage area;

b. Respondent has now posted "No Smoking" signs in the hazardous waste drum storage area;

c. Respondent has now marked the wastewater treatment plant hazardous waste container(s) with the accumulation date, and

d. Respondent has now marked the wastewater treatment plant hazardous waste container(s) with the words "Hazardous Waste."

ORDER

WHEREFORE, based upon the above Findings and upon the consent of the parties, it is hereby ORDERED that:

1. Within thirty (30) days of the date of receipt of this Order, Respondent shall submit to this office a written, detailed

explanation of the steps taken to avoid future violations of the Indiana Environmental Management Act, IC 13-7, and Indiana Administrative Code, 320 IAC 4, if it is necessary to dispose of calcium oxide.

2. By December 31, 1985, Respondent shall possess and maintain all necessary personnel training records and submit a written, detailed explanation of the facility's personnel training record keeping procedures.

3. By December 31, 1985, Respondent shall prepare a comprehensive evacuation plan for the facility and submit the revised evacuation plan to this office.

4. Respondent shall continue to maintain posted danger signs at each entrance to the hazardous waste drum storage area.

5. Respondent shall continue to maintain posted "No Smoking" signs in the hazardous waste drum storage area.

6. Respondent shall continue to mark the wastewater treatment plant hazardous waste container(s) with the accumulation date.

7. Respondent shall continue to mark the wastewater treatment plant hazardous waste container(s) with the words "Hazardous Waste".

8. Pursuant to IC 13-7-13-1, the Respondent shall pay to the Indiana Environmental Management Special Fund as a civil penalty for the above violations, the sum of $2,250.00 within thirty (30) days of receipt of the Order.

9. The provisions of this Agreed Order will apply to the Respondent, its agents, servants, employees, successors, and assigns, and to all persons, firms, or corporations acting through or for the Respondent.

10. This Agreed Order will have no force or effect until it is approved by the Board, and timely compliance with the terms of this Agreed Order shall constitute a final resolution of this cause.

11. Respondent, by the duly authorized undersigned, hereby consents to the provisions of this Findings and Recommended Order and agree to be bound by said Order when issued by the Board.

TECHNICAL RECOMMENDATION

BY: Thomas L. Russell by JJ
Mr. Thomas L. Russell, Chief
Enforcement Section

DATE: June 18, 1985

DELCO REMY, DIVISION OF
GENERAL MOTORS CORPORATION

BY: James E. Thompson
Mr. James E. Thompson
Manufacturing Manager

DATE: 8/12/85

BY: Leland G. Robinson
Mr. Leland G. Robinson
Assistant Superintendent

DATE: 8/7/85

APPROVED FOR LEGALITY AND FORM

HON. LINLEY E. PEARSON
Attorney General of Indiana

BY: Ann Scholl Long
Ms. Ann Scholl Long
Deputy Attorney General

DATE: 8/29/85

RECOMMENDATION FOR ADOPTION

BY: James M. Garrettson
Mr. James M. Garrettson
Hearing Officer

DATE: 9/30/85

INDIANA ENVIRONMENTAL MANAGEMENT BOARD

BY: Ralph C. Pickard
Mr. Ralph C. Pickard
Technical Secretary

DATE: 9/30/85

RJS/sk

IND 980 503 940

1-28-93

Comp

EP 102 C.2.1

1724

"SOFT HAMMER" WASTES*

LAND DISPOSAL RESTRICTION NOTIFICATION AND CERTIFICATION FORM

Generator Name: GM-Delco Remy **Manifest Number:** 1L4007869

EPA Hazardous Waste Codes[1]: U080, U220 **CWM Profile Number:** LAB 192999

This form is submitted to TSDF in accordance with 40 CFR Part 268, which restricts the land disposal of certain hazardous wastes. I have marked the appropriate box below to indicate whether alternative treatment has been found for my waste. (See reverse side for the list of "soft-hammer" wastes and instructions on using this form.)

[X] **A. SOFT-HAMMER WASTE FOR WHICH ALTERNATIVE TREATMENT OR RECOVERY HAS BEEN LOCATED**

The soft-hammer waste I generate is (are) U080, U220. I have identified a practically available treatment technology that yields the greatest environmental benefit. Together with the initial shipment of waste represented by this form, I submitted a demonstration to the Regional Administrator in accordance with 40 CFR 268.8(a)(1), including a list of facilities and facility officials contacted, complete with addresses, telephone numbers, and contact dates, and a justification that I have chosen the best treatment that is practically available.

"I certify under penalty of law that the requirements of 40 CFR 268.8(a) have been met and I have contracted to treat my waste (or will otherwise provide treatment) by the practically available technology which yields the greatest environmental benefit, as indicated in my demonstration. I believe that the information submitted is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

[ ] **B. SOFT-HAMMER WASTE FOR WHICH DISPOSAL IN LANDFILL OR SURFACE IMPOUNDMENT IS THE ONLY PRACTICAL ALTERNATIVE TO TREATMENT CURRENTLY AVAILABLE**

The soft-hammer waste(s) I generate or have treated is (are) _____. I have made a good-faith effort to locate and contract with treatment and recovery facilities practically available which can meaningfully reduce the toxicity or mobility of hazardous constituents in the waste, as an alternative to land disposal. I have found no such alternative facility. Together with the initial shipment of waste represented by this form, I submitted a demonstration in accordance with 40 CFR 268.8(a), including a list of facilities and facility officials contacted, addresses, telephone numbers, contact dates, and an explanation of why no treatment is practically available. This soft-hammer waste must be disposed of in a landfill or surface impoundment meeting the minimum technological standards until treatment standards are set for the waste or May 8, 1990, whichever occurs first.

"I certify under penalty of law that the requirements of 40 CFR 268.8(a)(1) have been met and that disposal in a landfill or surface impoundment is the only practical alternative to treatment currently available. I believe that the information submitted is true, accurate, and complete. I am aware that there are significant penalties for submitting false informations, including the possibility of fine or imprisonment."

[ ] **C. TREATMENT OR RECOVERY FACILITY HAS TREATED THE WASTE**

The following soft-hammer waste(s) was treated in accordance with the generator's demonstration: _____

"I certify under penalty of law that I have personally examined and am familiar with the treatment technology and operation of the treatment process used to support this certification and that, based on my inquiry of those individuals immediately responsible for obtaining this information, I believe that the treatment process has been operated and maintained properly so as to comply with treatment as specified in the generator's demonstration. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

[ ] **D. SOFT-HAMMER WASTE DESTINED FOR LAND DISPOSAL OTHER THAN IN LANDFILL OR SURFACE IMPOUNDMENT (e.g. DEEP INJECTION WELL)**

The soft-hammer waste(s) I generate is (are) _____. This waste is being disposed of in a land disposal unit other than a landfill or surface impoundment and therefore is not subject to the certification and demonstration requirements described above.

Signature _____ Title Environmental Eng Date 8/21/89

[1] List all EPA Waste Codes present in this shipment of waste. Attach separate sheet, listing waste codes if necessary.

VIRGIN PRODUCT

Instructions For Completing the "Soft Hammer" Notification and Certification Form

What is a "Soft-Hammer" Waste?

"Soft-Hammer" wastes are those listed hazardous wastes in the First-and Second-Third of the Scheduled Wastes for which EPA has not set treatment standards. See section 3004(g) of the Resource Conservation and Recovery Act (RCRA).

List of "Soft-Hammer" Wastes

K004-*1	K069-*2	P002	P027	P072	P120	U018	U043	U066	U097	U122	U144	U165	U189	U216
K008-*1	K073	P003	P036	P081	P122-*6	U019	U044	U067	U098	U124	U146	U168	U192	U217
K017	K083-*3	P004	P037	P082	P123	U020	U046	U070	U099	U127	U147	U169	U193	U218
K021-*1	K084	P005	P048	P084	U002	U021	U047	U073	U101	U128	U149	U170	U196	U219
K022-*1	K085	P007	P049	P087	U003	U022	U049	U074	U103	U129	U150	U171	U200	U220
K025-*1	K086-*4	P008	P050	P092	U005	U023	U050	U077	U105	U130	U151	U172	U203	U226
K029-*1	K095-*1	P010	P054	P102	U007	U025	U051	U078	U106	U131	U154	U173	U205	U227
K031	K096-*1	P011	P057	P105	U008	U026	U053	U080	U108	U133	U155	U174	U206	U228
K035-*1	K097	P012	P058	P107	U009	U029	U057	U083	U109	U134	U157	U176	U208	U237
K036-*1	K098	P014	P060	P108	U010	U031	U059	U086	U110	U135	U158	U177	U209	U238
K041	K101-*5	P105	P066	P110	U011	U032	U060	U089	U111	U137	U159	U178	U210	U239
K042	K102-*5	P106	P067	P112	U012	U035	U061	U092	U114	U138	U161	U179	U211	U244
K046	K105	P018	P068	P113	U014	U036	U062	U093	U115	U140	U162	U180	U213	U248-*7
K060-*1	K106	P020	P069	P114	U015	U037	U063	U094	U116	U142	U163	U185	U214	U249-*6
K061-*1	P001	P026	P070	P115	U016	U041	U064	U095	U119	U143	U164	U188	U215	

*1 - wastewater
*2 - calcium sulfate category
*3 - except no ash category
*4 - ink, caustic water wash & sludges
*5 - high arsenic sub-category greater than 1%
*6 - greater than 10%
*7 - greater than .3%

How Must "Soft-Hammer" Wastes Be Managed?

Until May 8, 1990 these wastes may be disposed in a landfill or surface impoundment only if such unit is in compliance with the minimum technological requirements and prior to such disposal, the generator has made a good-faith effort to locate and contract with treatment and recovery facilities practically available which provide the greatest environmental benefit.

What is "Practical Treatment?"

First, if a generator's "soft-hammer" wastes were treated in the past, EPA says it would consider at least this type of treatment to be "practical" for that generator. Second, EPA presents a cost ratio that measures the cost of treatment relative to the baseline cost of shipment and disposal in a minimum technological landfill or surface impoundment. If treating the waste costs at least twice as much as not treating the waste, EPA would ordinarily consider that form of treatment to be impractical. Third, EPA has provided in the rule's preamble a generic hierarchy of preferred treatment methods for certain First-Third wastes, see 53 Fed. Reg. 31175-76. Last, in general, the Agency says it favors recovery/recycling facilities as the best method, followed by destruction technologies such as incineration (especially for organics), and then stabilization where recycling or destruction is unavailable or inappropriate (especially for inorganics).

Which Box Should I Mark?

Mark Box A on the front of this form if you generate (or have treated) one of the hazardous wastes listed above, and you have located a treatment or recovery process which yields the greatest environmental benefit.

Mark Box B if you generate one of the hazardous wastes listed above but have been unable to locate an alternative treatment. Note that if this waste is disposed in a landfill or surface impoundment, the unit must comply with the minimum technological requirements.

Mark Box C if you have treated soft-hammer waste in accordance with the generator's demonstration.

Mark Box D if your soft-hammer waste is being land disposed in a unit other than a landfill or surface impoundment (e.g., deep well injection). The certification and demonstration requirements of Boxes I, II, III do not apply.

Where Should The Forms Be Sent?

The generator must submit the certification and demonstration to the Regional Administrator (RA). Certifications and demonstrations for subsequent shipments need not be sent to the RA provided the conditions of the original certification do not change (i.e., the same demonstration applies). The generator must also send the demonstration and certification to the receiving facility with the initial waste shipment. Provided the conditions of the certification do not change, only the certification need be sent with each subsequent waste shipment. The treatment facility must send a copy of the generator's demonstration and certification to the facility receiving the waste or treatment residues, along with a certification that it has treated the waste in accordance with the generator's demonstration.

DATE: 8/21/89

TO: REGIONAL ADMINISTRATOR

ADDRESS: 2305 Dearborn
Chicago, IL

RE: SOFT HAMMER DEMONSTRATION/CERTIFICATION FOR MATERIALS DESTINED FOR TRADE WASTE INCINERATION

In accordance with the Environmental Protection Agency's land disposal restrictions governing the scheduled wastes,

GM - Delco Remy has enclosed a soft hammer
(Generator Name)
demonstration and certification as per 40 CFR 268.8(a)(1) for CWM Profile LAB192999 bearing EPA waste code(s) U080, U220.

This demonstration *(see reverse)* has been prepared following communication with Chemical Waste Management and reflects our efforts to locate practically available treatment which affords the greatest environmental benefit. We believe that the information submitted is true, accurate, and complete. Based on this information we have determined that incineration is the best practically available treatment.

If any further information is required, please contact me at (317) 646-2957.
(Phone Number)

Sincerely,

(Signature)

Through discussion wi Chemical Waste Management nd in accordance with 40 CFR 268.8(a)(1) I have develop this demonstration which is applicable to the following waste codes:

K017	P001	P016	P058	P092	P123	U016	U035	U057	U077	U099	U119	U138	U155	U173	U196	U216	U245
K031	P002	P018	P060	P102	U002	U018	U036	U059	U078	U101	U122	U140	U159	U174	U200	U217	U249
K041	P003	P020	P066	P105	U003	U019	U037	U060	U080	U103	U124	U142	U161	U176	U203	U218	
K042	P004	P026	P067	P107	U005	U020	U041	U061	U083	U105	U127	U143	U162	U177	U205	U219	
K046	P005	P027	P068	P108	U007	U021	U043	U062	U086	U106	U128	U144	U163	U178	U206	U220	
K073	P007	P036	P069	P110	U008	U022	U044	U063	U089	U108	U129	U146	U164	U179	U208	U226	
K084	P008	P037	P070	P112	U009	U023	U046	U064	U092	U109	U130	U147	U165	U180	U209	U227	
K085	P010	P048	P072	P113	U010	U025	U047	U066	U093	U110	U131	U149	U168	U185	U210	U228	
K097	P011	P049	P081	P114	U011	U026	U049	U067	U094	U111	U133	U150	U169	U188	U211	U237	
K098	P012	P050	P082	P115	U012	U029	U050	U070	U095	U114	U134	U154	U170	U189	U213	U238	
K105	P014	P054	P084	P120	U014	U031	U051	U073	U097	U115	U135	U155	U171	U192	U214	U239	
K106	P015	P057	P087	P122	U015	U032	U053	U074	U098	U116	U137	U157	U172	U193	U215	U244	

FACILITY: Solvent Resource & Recovery Inc.
4301 Infirmary Road, West Carrollton, OH 45549
PHONE: (513) 859-6101
CONTACT: Carol Moody, Laboratory Manager
DATE: September 22,1988
TREATMENT: Solvent recovery, Fuels blending
RESPONSE: Facility unable to treat EPA listed wastes currently subject to the soft hammer; facility does not accept lab packs for solvent recovery or fuels blending.

FACILITY: Trade Waste Incineration
7 Mobile Ave., Sauget, IL 62201
PHONE: (618) 271-2804
CONTACT: Dennis Warchol, Environmental Manager
DATE: September 22, 1988
TREATMENT: Incineration
RESPONSE: Incineration is the practically available technology which yields the greatest environmental benefit. The waste is principally organic residues which are best destroyed by incineration.

FACILITY: Adams Center Landfill
4636 Adams Center Rd., Fort Wayne, IN 46806
PHONE: (219) 447-5585
CONTACT: Steve Ball, Technical Manager
DATE: April 20, 1989
TREATMENT: Land disposal/Stabilization
RESPONSE: Facility has the capability to meaningfully reduce the toxicity and/or mobility of inorganic constituents. Lab packs are not accepted for stabilization.

D Corrective Action

IND 980 503 940

CONESTOGA-ROVERS & ASSOCIATES

261 Martindale Road, Unit #3
St. Catharines, Ontario L2W 1A2
Telephone: (905) 682-0510 Fax: (905) 682-8818
www.CRAworld.com

MEMORANDUM

TO:	Dawn Cleary	REF. NO.:	13048-10
FROM:	Greg Carli/Golnoush Bolourani/056/STC	DATE:	October 20, 2008
C.C.:	Jean Caufield Meredith Anthony Ian Richardson Steve Song Kun Zhao		
RE:	**Vapor Intrusion Evaluation** **GM - 2401 Columbus Avenue Facility** **Anderson, Indiana**		

INTRODUCTION

As discussed in General Motors Corporation (GM's) "Responses to September 10, 2007 IDEM Comments on the GM December 12, 2006 Draft Responses to Comment Document" dated January 21, 2008, and the Quarterly Progress Report No. 17 dated March 2008, GM has undertaken a further evaluation of the potential for vapor intrusion from groundwater in the vicinity of the 2401 Columbus Avenue Site, in Anderson, Indiana (Site). Specifically, the further evaluation focused on the potential for constituents associated with the chlorinated volatile organic compound (CVOC) plume to volatilize and migrate into buildings in the residential areas adjacent to the Site. This memorandum has been prepared by Conestoga-Rovers & Associates (CRA), with contributions from ENVIRON International Corporation (ENVIRON), to summarize the activities that occurred between January 2008 and August 2008 to support the evaluation and the results of the evaluation.

To support the further evaluation of the potential for vapor intrusion from groundwater, the following activities were conducted:

1. review of existing information pertaining to the soil types and vadose zone geology at and in the vicinity of the Site;
2. review of historical depths to groundwater in the shallow aquifer;
3. sampling of shallow monitoring wells associated with the Site to develop current trichloroethene (TCE) concentration contours to identify areas with the highest potential for vapor intrusion from groundwater;
4. a mapping of building types (e.g., full basement, crawl space, slab on grade) in the residential area to the northwest of the Site; and
5. Installation and sampling of soil gas probes at two on-site areas that based on groundwater concentrations and stratigraphy are expected to be the worst case for vapor intrusion.

REVIEW OF VADOSE ZONE GEOLOGY

In an effort to identify areas that would have the highest potential for vapor intrusion from groundwater, GM reviewed the soil boring logs from investigations conducted from 1998 to 2008 for key stratigraphic features of the vadose zone that are relevant to the potential for vapor intrusion from groundwater. The review showed that the vadose zone geology in the vicinity of the Site consists of a fill material underlain by a clay overburden unit. The depth of the clay overburden ranges from a minimum of 5 feet below ground surface (bgs) at former Plant 5 and near the MW18 well cluster, to as deep as 28 feet bgs in the residential neighborhood located north of former Plant 5. The thickness of the clay layer is important to the evaluation because the thickness of the clay layer beneath a building (which also depends on the building's type of foundation) is a key factor in determining the degree to which vapor migration from the water table to the building foundation will be reduced. Figure 1 presents a contour map of the depth to bottom of clay overburden generated from the soil boring logs that were reviewed. As shown on Figure 1, the clay overburden extends throughout the Site and surrounding area and, with a few exceptions, is generally 10 feet or more in depth.

SHALLOW GROUNDWATER DEPTHS

Similar to the depth to the bottom of the clay overburden unit, CRA reviewed historical groundwater depths for monitoring wells screened in the upper portion of the shallow aquifer (i.e., at or near the water table) to develop a contour map of the distance from the ground surface to the groundwater table. Contour maps based on the groundwater depths collected in March 2005 and November 2007 are presented on Figures 2 and 3, respectively. It should be noted that there is significant difference between the depth to groundwater in March 2005 compared to November 2007 (i.e., 3 feet or more in some areas), however, the general pattern is similar. Based on the March 2005 data, which represents the higher groundwater condition, there is typically 10 to 15 feet of unsaturated soil, predominantly consisting of sand, between the bottom of the overburden clay and the water table at and in the vicinity of the Site.

GROUNDWATER TCE CONTOURS

As noted in Quarterly Progress Report (QPR) No. 18, groundwater from twenty-nine monitoring wells was sampled over six days between April 21 and May 6, 2008 to support further assessment of potential for vapor intrusion. The results of the sampling, which were presented in QPR No. 18, were used to develop TCE concentration contours for the upper portion of the aquifer (i.e., using only monitoring wells screened at the water table). The TCE contours are presented on Figure 4. TCE contours presented on Figure 4 include the Indiana Department of Environmental Management (IDEM) Risk Integrated System of Closure (RISC) residential groundwater default closure level of 5 µg/L (which is the same as the MCL), a generic default vapor intrusion criterion of 37 µg/L which is based on IDEM guidance, and a concentration 10 times higher (370 µg/L). The 37 µg/L criterion was derived from Table 5 of the IDEM's 2006 draft vapor intrusion guidance by conservatively assuming an exposure period of 30 years and sand as the soil type, and then interpolating to a site-specific 13-foot depth to groundwater. The 370 µg/L contour was included because IDEM's 2006 draft vapor intrusion guidance says that IDEM believes soil gas sampling and possibly indoor air sampling are generally warranted where groundwater concentrations exceed 10 times the vapor intrusion criteria.

The vapor intrusion criterion was conservatively based on sand and interpolated from Table 5 (Commercial Ground Water Screening Levels) because the clay overburden overlying the groundwater plume is only 5 feet thick at a small area on-site, and in the event that a building with a basement were to be constructed

in this area, the soil underlying the basement would be sand. An alternate criterion based on a loam soil type and interpolating from Table 4 (Residential Ground Water Screening Levels) was also considered, because the clay overburden overlying the plume in the off-site residential area is at least 10 feet thick and would not be penetrated by a basement. (A loam soil was considered for the alternate criterion because Table 4 does not include criteria based on clay.) However, a vapor intrusion criterion based on loam and interpolated from Table 4 to a site-specific 13-foot depth to groundwater would be approximately 41.5 µg/L, which is slightly less conservative than 37 µg/L. As such, the more conservative value of 37 µg/L was used in contouring the groundwater data.

As shown on Figure 4, the 370 µg/L contour is entirely within the Site or adjacent properties where current and reasonably foreseeable future land use is commercial or industrial. The 370 ug/L contour does not extend into the residential area located north of former Plant 5.

RESIDENTIAL DWELLING TYPES

GM conducted a survey of foundation types for the residential properties located on Pearl Street, Walnut Street, and Nobel Street between 23rd Street and 25th Street. The properties were classified into the following four categories based on the building construction features:

- Type-I: Buildings with a crawl space;
- Type-II: Buildings with a basement;
- Type-III: Buildings with a side-split construction; and
- Type-IV: Buildings with slab on grade.

The results of the building type survey are presented on Figure 5. Figure 5 also shows the depth to the bottom of the clay overburden in the residential area north of former Plant 5 (i.e., from Figure 1) and the TCE concentration contours presented on Figure 4. Based on the screening process performed and the analysis of clay thickness throughout the Site, the following conclusions were made:

- No residential buildings are located near the TCE concentration contour of 370 µg/L;
- Three Type-I (i.e., crawl space) residential properties are present over the vicinity of TCE concentration contour of 37 µg/L, however, the depth to bottom of clay overburden in this area is between 10 to 12 feet bgs. Therefore, it is highly unlikely that the clay overburden would have been compromised during construction of these dwellings; and
- There are three residential buildings above the IDEM RISC TCE concentration contour of 5 µg/L. Two of the properties are Type-II and one of them is Type-I. The depth to bottom of clay overburden in this area is 12 to 14 feet bgs. Therefore, it is highly unlikely that the clay overburden would have been compromised during construction of these dwellings.

SOIL GAS PROBE INSTALLATION AND SAMPLING

In March 2008, GM installed two soil gas probes (GP-1 and GP-2) at former Plant 5 that were screened at the interval just below the clay overburden. The locations of the soil gas probes are shown on Figure 6, and the stratigraphic logs for the probes are provided in Attachment A. The two probes were installed at locations that are expected to be the worst-case for vapor intrusion if buildings were to be constructed over the

groundwater plume. Specifically, GP-1 was installed above the groundwater contaminant plume where the highest TCE concentrations were observed adjacent to the residential area. The monitoring well nearest GP-1 is MW-14S, as shown on Figure 6. In the most recent groundwater sample from MW-14S, which was collected in May 2008, the TCE concentration was 1.6 mg/L. Figure 6 and Attachment A show that the depth to the bottom of the clay overburden at GP-1 is approximately 9 feet. GP-2 was installed where the depth to the bottom of the clay overburden is the shallowest. As shown on Figure 6 and in Attachment A, the depth to the bottom of the clay overburden at GP-2 is approximately 5 feet. The monitoring well nearest GP-2 is MW-15, which had a TCE concentration of 0.92 mg/L in the most recent sample collected in May 2008.

On July 11, 2008, CRA sampled the two soil gas probes for TCE, cis-1,2-dichloroethene (cis-1,2-DCE), and vinyl chloride and submitted the samples to TestAmerica laboratory of Santa Ana, California. The results of the samples, including one field duplicate at GP-1, one ambient air sample, and one trip blank are presented in Table 1. In the duplicate pair from GP-1, only TCE was detected and it was detected at a concentration of 3.6 mg/m^3 in both samples. In the sample from GP-2, cis-1,2-DCE was detected at 0.01 mg/m^3 and TCE was detected at 0.89 mg/m^3. None of the three VOCs was detected in the ambient air sample or in the trip blank.

INTERPRETATION OF SOIL GAS DATA

The significance of the soil gas data at GP-1 and GP-2 was evaluated by placing a hypothetical residential building at each soil gas sample location, estimating the indoor air concentrations in the building due to vapor intrusion from the soil gas, and then calculating the cancer risk and hazard index for the predicted indoor air concentrations. The evaluation was performed for TCE. The evaluation was not necessary for cis-1,2-DCE because the soil gas concentration of 0.01 mg/m^3 is lower than the reference concentration (RfC) of 0.035 mg/m^3 that is calculated by route-to-route extrapolation from the oral reference dose (RfD) recommended by U.S. EPA as a Provisional Peer Reviewed Toxicity Value (PPRTV). This means the soil gas concentration of cis-1,2-DCE detected at GP-2 is safe to breathe directly as indoor air. The results of the evaluation for TCE show that the TCE concentrations detected in the soil gas at GP-1 and GP-2 do not pose a significant vapor intrusion risk, which also means the groundwater plume is unlikely to pose a significant vapor intrusion risk anywhere off-site. The following is a summary of the evaluation.

The TCE concentration in the indoor air of the hypothetical building at each soil gas sample location was calculated by multiplying the soil gas TCE concentration by an attenuation coefficient (α) that was calculated using U.S. EPA's Soil Gas-Advanced Model (SG-ADV) spreadsheet adaptation of the Johnson and Ettinger model (U.S. EPA 2004). The spreadsheet calculations for α are shown in Attachment B. As shown in Attachment B, the characteristics of the hypothetical residential building were conservatively set to the U.S. EPA default values. Soil in the foundation cracks was conservatively assumed to be "dry" sand. The soil between the foundation and the GP-1 soil gas sample was set to clay, based on the stratigraphic log for GP-1 (see Attachment A). At GP-2, where the clay overburden is shallower than the basement depth, the calculations were performed by conservatively assuming that the GP-2 sample was collected immediately below the foundation in sand.

The calculations in Attachment B show that the attenuation coefficients for TCE at GP-1 and GP-2 are 1.5×10^{-3} and 4.7×10^{-3}, respectively, and the corresponding indoor air concentrations in the hypothetical residential basement are 0.0053 mg/m^3 and 0.0024 mg/m^3. Using a TCE unit risk factor (URF) of 1.7×10^{-3} per mg/m^3, which U.S. EPA's NCEA recommended in 1995 (U.S. EPA 1995), the cancer risk associated with these indoor air concentrations are 3.7×10^{-6} and 1.7×10^{-6}. These cancer risks are well below the acceptable

limit of 10^{-4}. If one were to use IDEM's 2005 interim URF of 1.5×10^{-2} per mg/m^3 for residential exposures, the cancer risks would be 3.3×10^{-5} and 1.5×10^{-5}, which are still well below the acceptable limit of 10^{-4}. The estimated indoor air concentrations are also much lower than the Agency for Toxic Substances and Disease Registry's (ATSDR's) intermediate minimal risk level (MRL) of 0.54 mg/m^3, which means they do not pose a significant noncancer risk either.

It should be noted that the U.S. EPA default assumptions used for calculating the attenuation coefficients in this evaluation are more conservative than necessary for estimating reasonable maximum exposures (RME). As such, the risk estimates calculated in the evaluation and discussed above are not RME risk estimates, and should be considered as upper-bound risk estimates. For example, U.S. EPA's default air exchange rate of 0.25 per hour is an extreme low value that is representative of seasonal conditions in highly energy-efficient residential buildings, and is not likely to represent long-term conditions in the residential buildings in the vicinity of the Site, which are the conditions that should be used in RME cancer risk calculations. The risk assessment previously conducted for the Site used an air exchange rate of 1 per hour which was believed to be appropriate for estimate the RME. Using this air exchange rate would decrease by a factor of four the attenuation coefficients, and thereby, the estimated indoor air concentrations discussed above.

Another reason the risk estimates discussed above should be considered upper-bound estimates is that the soil gas data were collected at worst-case locations. As discussed earlier, the soil gas data at GP-1 were collected where the concentration of TCE in groundwater adjacent to the residential area is the highest. At off-site locations in the vicinity of existing residences, the TCE concentrations in groundwater are much lower, as shown on Figure 4. In addition, the clay overburden off-site in areas overly the TCE groundwater plume is also thicker than that at GP-1 and GP-2, which would result in lower attenuation coefficients and lower estimated indoor air concentrations.

In summary, using worst-case soil gas data and worst-case assumptions for building characteristics, the upper-bound risk estimates calculated in the evaluation are still well within acceptable limits. As such, it can be concluded that the groundwater plume does not pose a vapor intrusion threat to off-site residents.

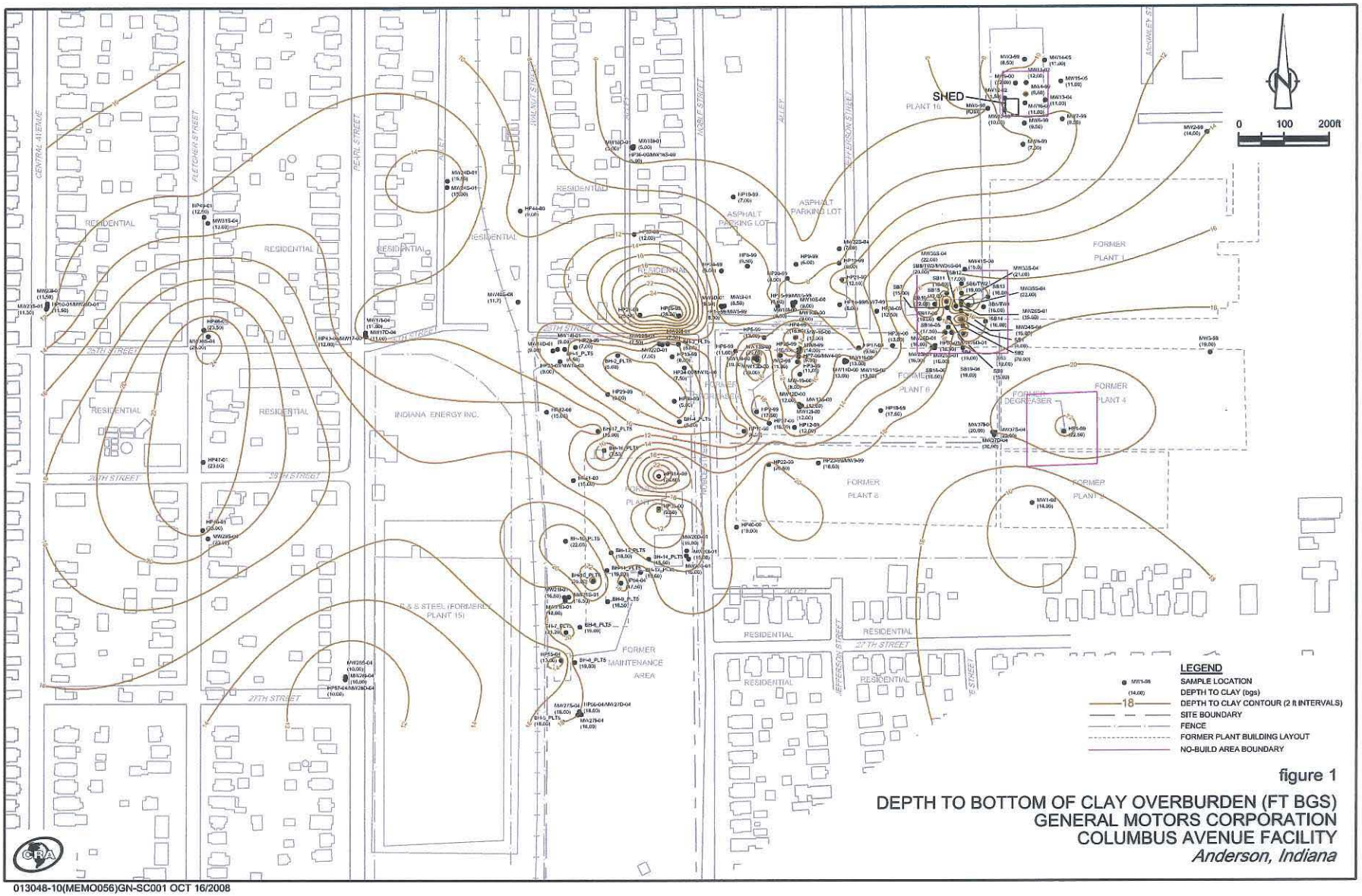
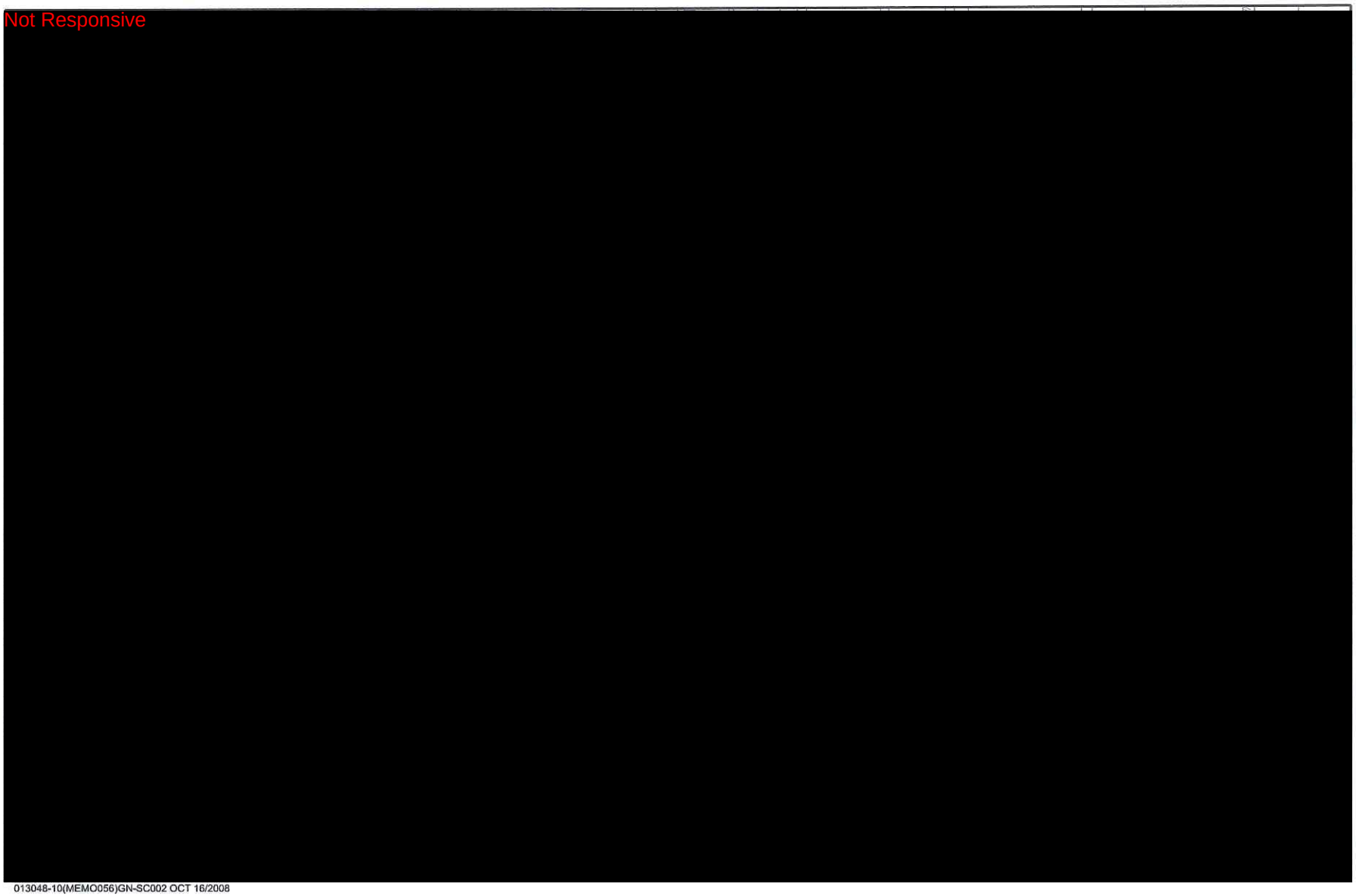


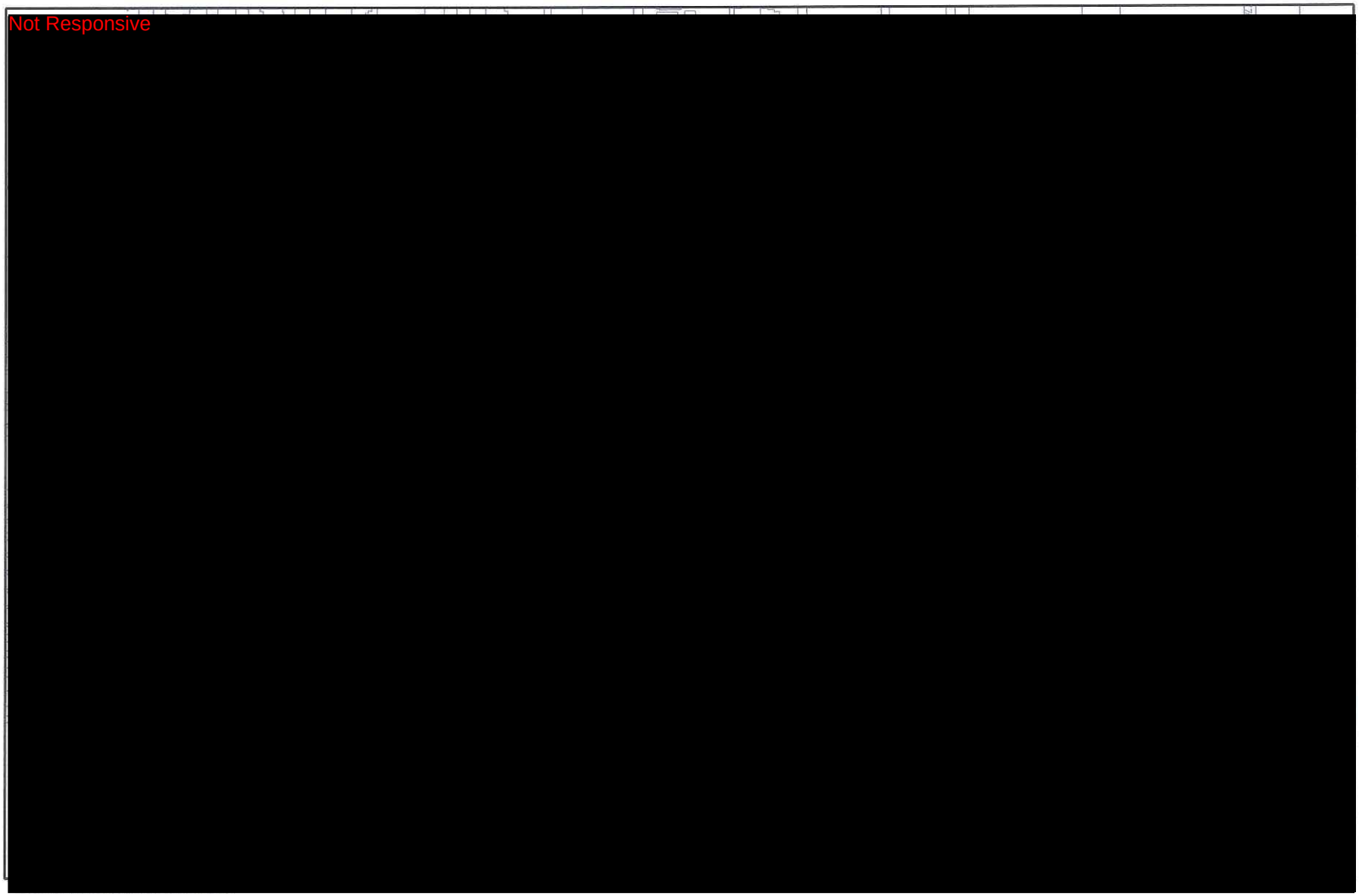
figure 1

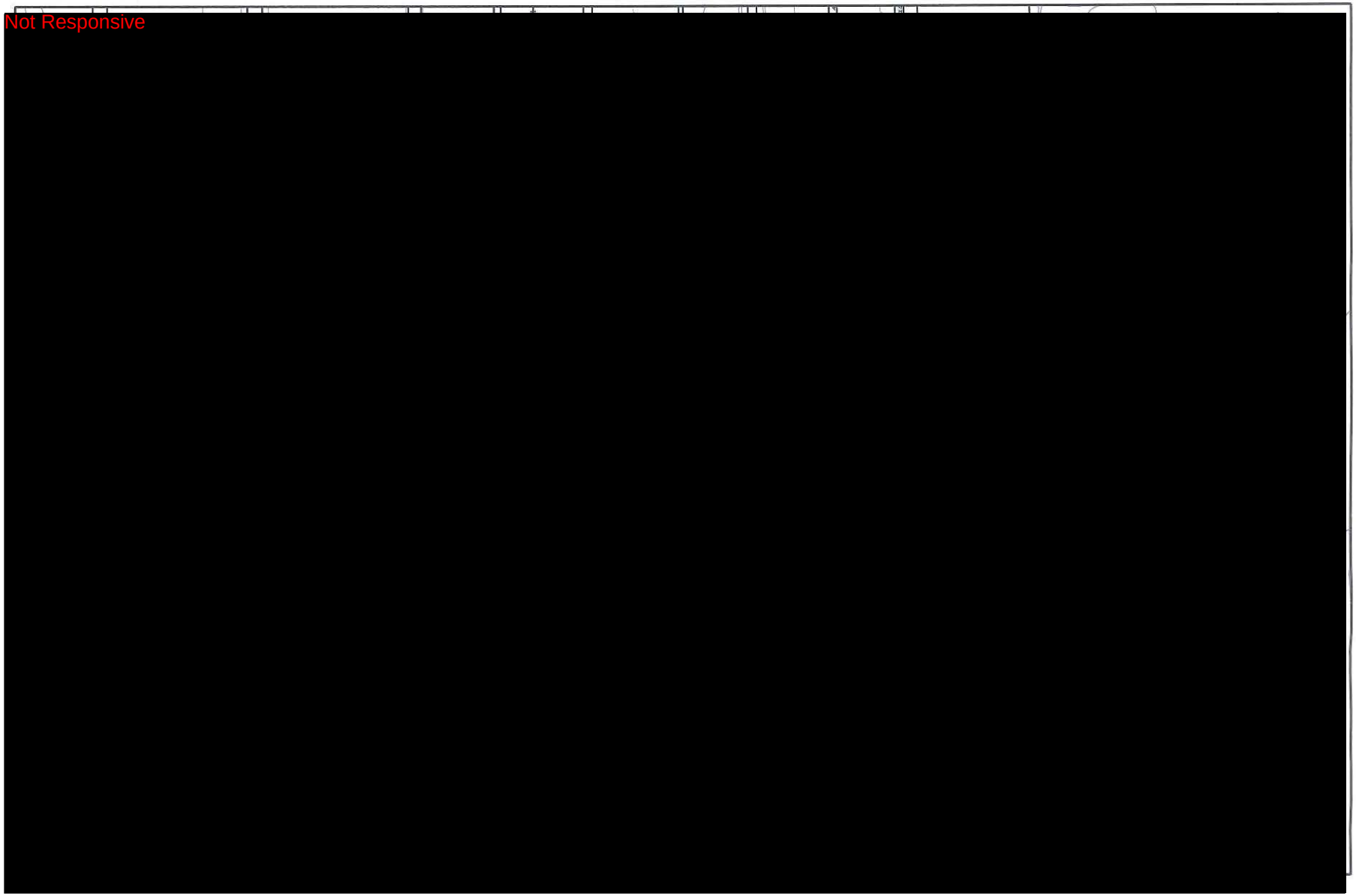
DEPTH TO BOTTOM OF CLAY OVERBURDEN (FT BGS)
GENERAL MOTORS CORPORATION
COLUMBUS AVENUE FACILITY
Anderson, Indiana

013048-10(MEMO056)GN-SC001 OCT 16/2008

Not Responsive




Not Responsive


Not Responsive


Not Responsive

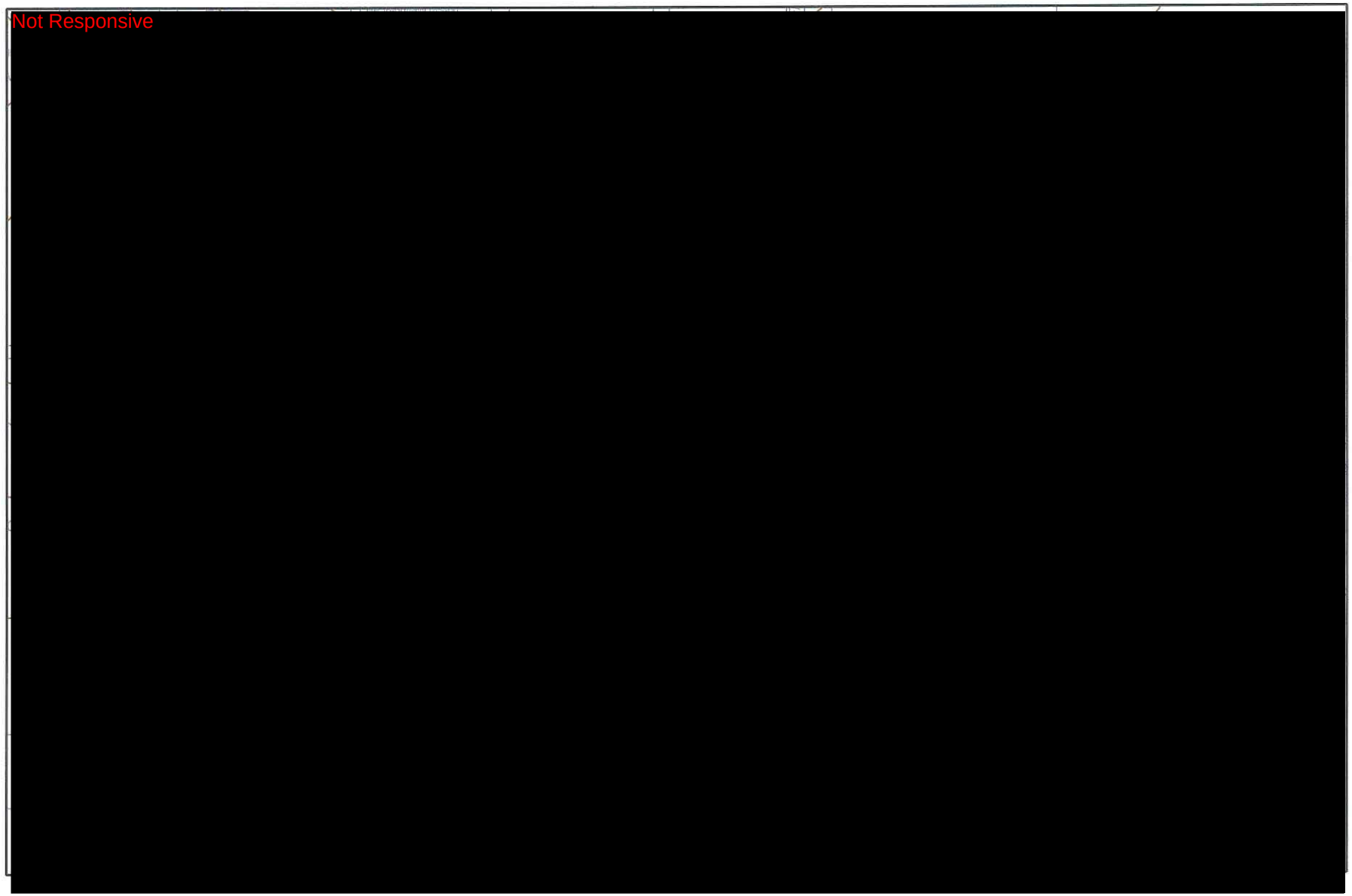

Not Responsive

TABLE 1

SOIL GAS SAMPLING RESULTS
VAPOR INTRUSION PATHWAY EVALUATION
GM- 2401 COLUMBUS AVENUE FACILITY
ANDERSON, INDIANA

Sample Location		*AMBIENTBLANK*	*GP1*	*GP1*	*GP2*	*Trip Blank*
Sample ID		*AA-013048-071108-NH-001*	*SG-013048-071108-NH-002*	*SG-013048-071108-NH-003*	*SG-013048-071108-NH-001*	*TB-013048-071108-NH-001*
Sample Date		*7/11/2008*	*7/11/2008*	*7/11/2008*	*7/11/2008*	*7/11/2008*
Sample Type				*Duplicate*		
	Units					
Volatile Organic Compounds						
cis-1,2-Dichloroethene	ug/m3	0.79 U	4.2 U	7.1 U	10	0.79 U
Trichloroethene	ug/m3	2.1 U	3600	3600	890	2.1 U
Vinyl chloride	ug/m3	0.51 U	2.7 U	4.6 U	2.4 U	0.51 U

Notes:
U - Not present at or above the associated value.
J - Estimated concentration.
UJ - Estimated reporting limit.

ATTACHMENT A

STRATIGRAPHIC LOGS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Columbus Avenue Facility
PROJECT NUMBER: 013048-10
CLIENT: General Motors Corporation
LOCATION: Anderson, Indiana

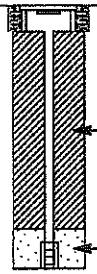
HOLE DESIGNATION: GP-1
DATE COMPLETED: March 31, 2008
DRILLING METHOD: DPT
FIELD PERSONNEL: N. Hill

NORTHING: 1763842.53
EASTING: 326387.55

GROUND SURFACE: 893.4 ft AMSL
TOP OF RISER: 893.1 ft AMSL

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft ft AMSL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
0	FILL	892.4					0.0
0	CONCRETE	891.9					
0	BRICK	891.7	1		70		0.0
4	CL-CLAY, sandy, firm, medium plasticity, brown, moist						0.1
8			2		90		0.0
10	SP-SAND, silty, trace clay, compact, medium grained, dark brown, moist	884.4					0.0
10	END OF BOREHOLE @ 10.0ft BGS	883.4					

DPT



WELL DETAILS
Screened interval:
884.4 to 883.4ft ft AMSL
9.0 to 10.0ft BGS
Length: 1ft
Material: PVC
Seal:
892.4 to 884.9ft ft AMSL
1.0 to 8.5ft BGS
Material: BENTONITE
Sand Pack:
884.9 to 883.4ft ft AMSL
8.5 to 10.0ft BGS
Material: PEA GRAVEL

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 13048-10.GPJ CRA_CORP.GDT 10/1/08

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Columbus Avenue Facility
PROJECT NUMBER: 013048-10
CLIENT: General Motors Corporation
LOCATION: Anderson, Indiana

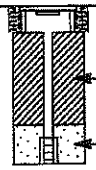
HOLE DESIGNATION: GP-2
DATE COMPLETED: March 31, 2008
DRILLING METHOD: DPT
FIELD PERSONNEL: N. Hill

NORTHING: 1763765.6
EASTING: 326620.62

GROUND SURFACE: 893.6 ft AMSL
TOP OF RISER: 893.3 ft AMSL

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft ft AMSL
0	FILL	892.6
0.5	CONCRETE	892.1
2	CL-CLAY, trace sand and gravel, brown based on soil boring log for MW15-00 approximately 60' northeast of GP-2	
4		888.6
5	SP-SAND, silty, trace clay, compact, medium grained, dark brown, moist - based on soil boring from GP-1	887.6
6	END OF BOREHOLE @ 6.0ft BGS	

DPT



WELL DETAILS
Screened Interval:
888.6 to 887.6ft ft AMSL
5.0 to 6.0ft BGS
Length: 1ft
Material: PVC
Seal:
892.6 to 889.1ft ft AMSL
1.0 to 4.5ft BGS
Material: BENTONTIE
Sand Pack:
889.1 to 887.6ft ft AMSL
4.5 to 6.0ft BGS
Material: PEA GRAVEL

SAMPLE NUMBER	INTERVAL	REC (%)	'N' VALUE	PID (ppm)
				0.0
		0		
				0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 13048-10.GPJ CRA_CORP.GDT 10/1/08

ATTACHMENT B

U.S. EPA'S SOIL GAS-ADVANCED MODEL
ATTENUATION COEFFICIENTS CALCULATIONS

DATA ENTRY SHEET: GP-1, Basement, Clay, Default Temperature

SG-ADV Version 3.1; 02/04

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
79016	3.60E+03			Trichloroethylene

MORE

ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (°C)	ENTER Totals must add up to value of Ls (cell F24) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
200	274.32	12.5	200	74.32	0	S		

MORE

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
S	1.66	0.375	0.054	C	1.43	0.459	0.215				

MORE

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	366	0.1	0.25	

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	30	30	350

END

INTERMEDIATE CALCULATIONS SHEET: GP-1, Basement, Clay, Default Temerature

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	74.32	0.321	0.244	ERROR	0.003	9.97E-08	0.998	9.95E-08	4,000	3.60E+03	2.54E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)
1.80E+06	2.22E-04	200	8,526	5.47E-03	2.34E-01	1.76E-04	1.28E-02	3.42E-03	0.00E+00	3.42E-03	74.32

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, exp(Pe^f) (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
200	3.60E+03	0.10	6.84E+01	1.28E-02	4.00E+02	1.55E+58	1.47E-03	5.31E+00	1.1E-04	4.0E-02

END

DATA ENTRY SHEET: GP-1, Basement, Clay, Soil Temperature = 16 C

SG-ADV Version 3.1; 02/04

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
79016	3.60E+03			Trichloroethylene

MORE

ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (°C)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
			Totals must add up to value of Ls (cell F24)					
200	274.32	16	200	74.32	0	S		

MORE

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
S	1.66	0.375	0.054	C	1.43	0.459	0.215				

MORE

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	366	0.1	0.25	

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	30	30	350

END

INTERMEDIATE CALCULATIONS SHEET: GP-1, Basement, Clay, Soil Temerature=16C

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	74.32	0.321	0.244	ERROR	0.003	1.00E-07	0.998	1.00E-07	4,000	3.60E+03	2.54E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)
1.80E+06	2.22E-04	200	8,483	6.58E-03	2.77E-01	1.77E-04	1.28E-02	3.42E-03	0.00E+00	3.42E-03	74.32

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, exp(Pe^f) (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
200	3.60E+03	0.10	6.84E+01	1.28E-02	4.00E+02	1.55E+58	1.47E-03	5.31E+00	1.1E-04	4.0E-02

END

DATA ENTRY SHEET: GP-2, Basement, Default Temperature

SG-ADV Version 3.1; 02/04

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
79016	8.90E+02			Trichloroethylene

MORE

ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (°C)	ENTER Totals must add up to value of Ls (cell F24) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
200	200	12.5	200	0	0	S		

MORE

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
S	1.66	0.375	0.054	S	1.66	0.375	0.054				

MORE

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	366	0.1	0.25	

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	30	30	350

END

INTERMEDIATE CALCULATIONS SHEET: GP-2, Basement, Default Temperature

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	1	0.321	0.321	ERROR	0.003	9.97E-08	0.998	9.95E-08	4,000	8.90E+02	2.54E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)
1.80E+06	2.22E-04	200	8,526	5.47E-03	2.34E-01	1.76E-04	1.28E-02	0.00E+00	0.00E+00	1.28E-02	1

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, exp(Pe^f) (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
200	8.90E+02	0.10	6.84E+01	1.28E-02	4.00E+02	1.55E+58	2.69E-03	2.39E+00	1.1E-04	4.0E-02

END